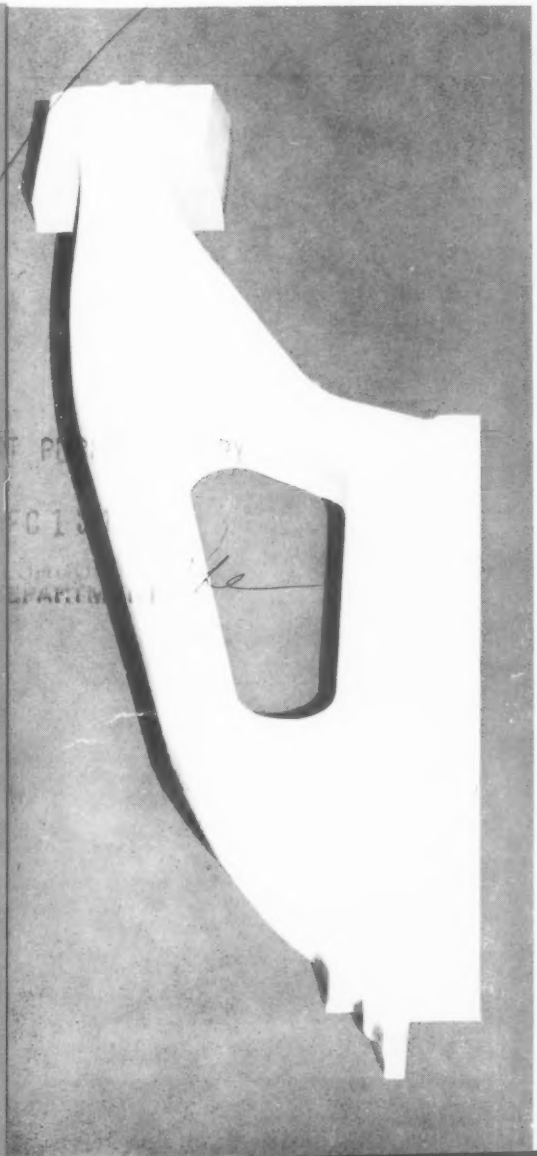
FOUNDRY TRADE JOURNAL
EST. 1902
WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL
VOL. 109
No. 2293
NOVEMBER 17. 1960
Registered at the G.P.O. as a Newspaper
Offices: John Adam House, John Adam St., London, W.C.2
Single Copy, 1/-. By Post 1/4. Annual Subscription, Home 52/- Abroad 60/- (Prepaid

The large economy size

Where replicas of large master patterns are required, Araldite casting resins provide exact duplicates in a very short time and at much lower cost for labour. Epoxy resins give extremely accurate reproduction of a mould surface. Setting takes place at room temperature, and there is no shrinkage, so that the operation of making a double-contraction pattern can be saved. For these large patterns, Araldite casting resin is used in conjunction with glass cloth laminates to give stability and flexural strength, and followed by a suitable filler. Patterns cast in Araldite are tough and not easily damaged. They need little care in storage, and are resistant to damp and chemical attack, so that they can be used for work employing the CO_2 process. Alterations are easily carried out when required, by using a paste of Araldite resin and hardener, with filler.

Replica of master pattern, 6 ft long, for a diagonal brace of a Caterpillar D8 tractor. Cast in Araldite by Wilkinson & Co. Ltd, Bilston, for F. H. Lloyd & Co. Ltd, Wednesbury, suppliers of casting to Caterpillar Tractor Co. Ltd, Glasgow.



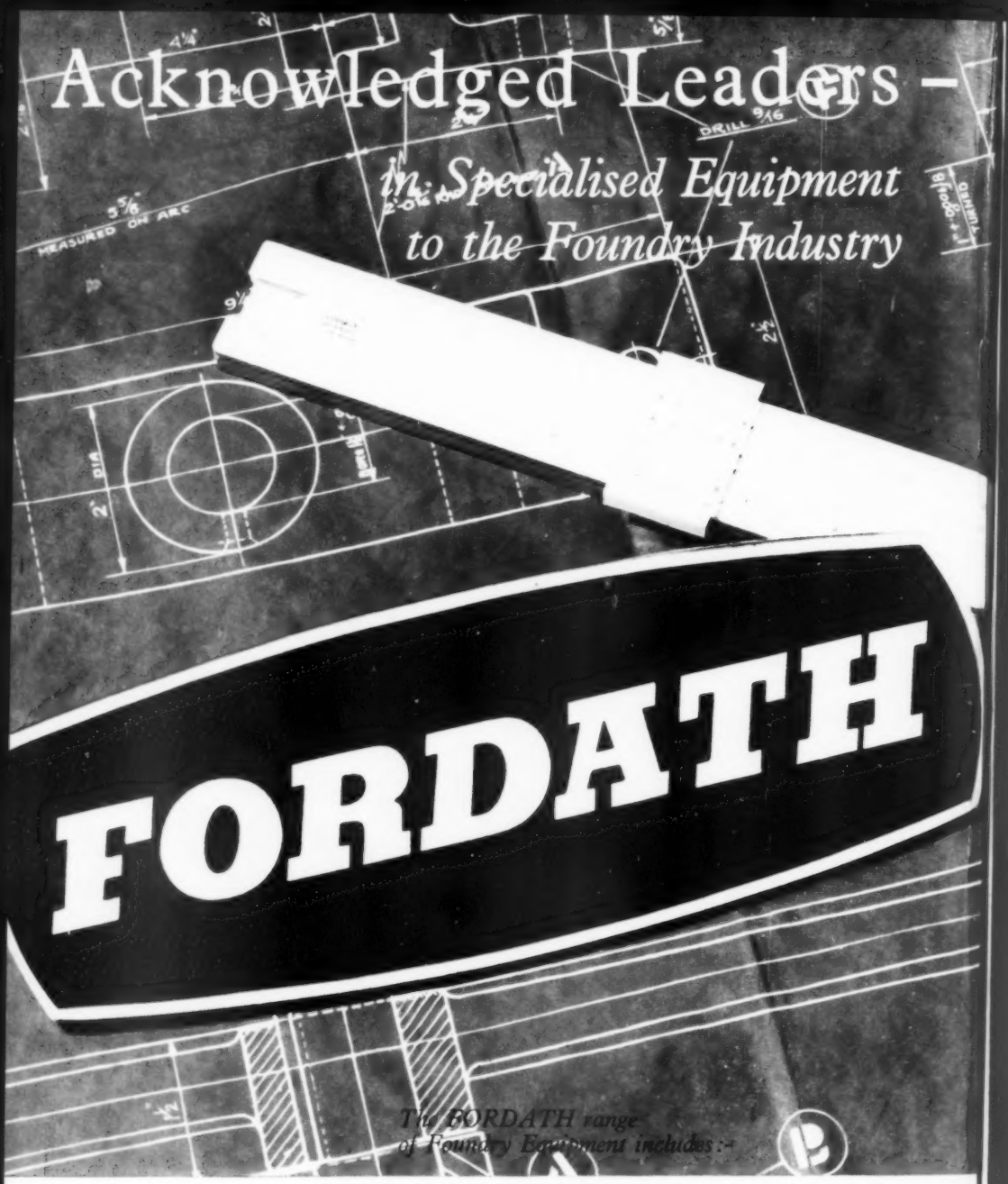
Araldite

epoxy resins

Araldite is a registered trade name

CIBA (A.R.L.) LIMITED

Duxford, Cambridge. Telephone: Sawston 2121



FORDATH COMPLETE SHELL SAND COATING UNITS
FORDATH SHELL MOULDING UNITS
FORDATH CORE SAND MIXERS
FORDATH CORE EXTRUSION MACHINES
FORDATH ROTARY SAND DRIERS AND COOLERS
CORALL COREBLOWING MACHINES

FORDATH

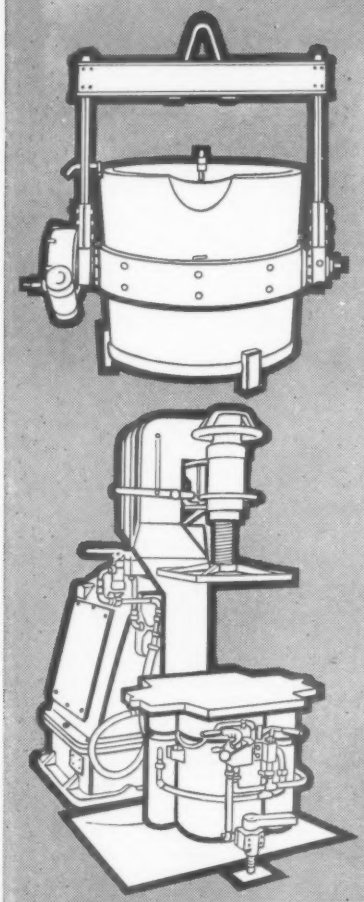
THE FORDATH ENGINEERING CO. LTD., BRANDON WAY, WEST BROMWICH STAFFS.
Telephone: WESt Bromwich 1665 (4 lines) Telegrams: Fordath Telex West Bromwich Telex No: 334[illegible]

FO23[illegible]/2 Basta[illegible]

ITS

STAFFS
No: 334

TWW FOUNDRY PLANT



The following Selection is available from stock subject to remaining unsold :

SHOT BLAST ROOM, 8ft. by 8ft. by 8ft. with double door.

COLEMAN - WALLWORK WT.562C SHOCKLESS JOLT SQUEEZE TURN-OVER MOULDING MACHINE.

COLEMAN-WALLWORK TYPE 'CN' JOLT SQUEEZE PATTERN DRAW MOULDING MACHINE, load 600lb., boxes 20in. by 20in. or 25in. by 12in.

ZIMMERMANN JOLT SQUEEZE PIN LIFT MOULDING MACHINE, Table 22½in. by 17½in.

TYPE BM2 MOTOR DRIVEN SAND MILL BY FOUNDRY EQUIPMENT LTD., 4-tons per hour capacity.

UNUSED AVERY HARDNESS TESTERS, 3,000 Kg. capacity.

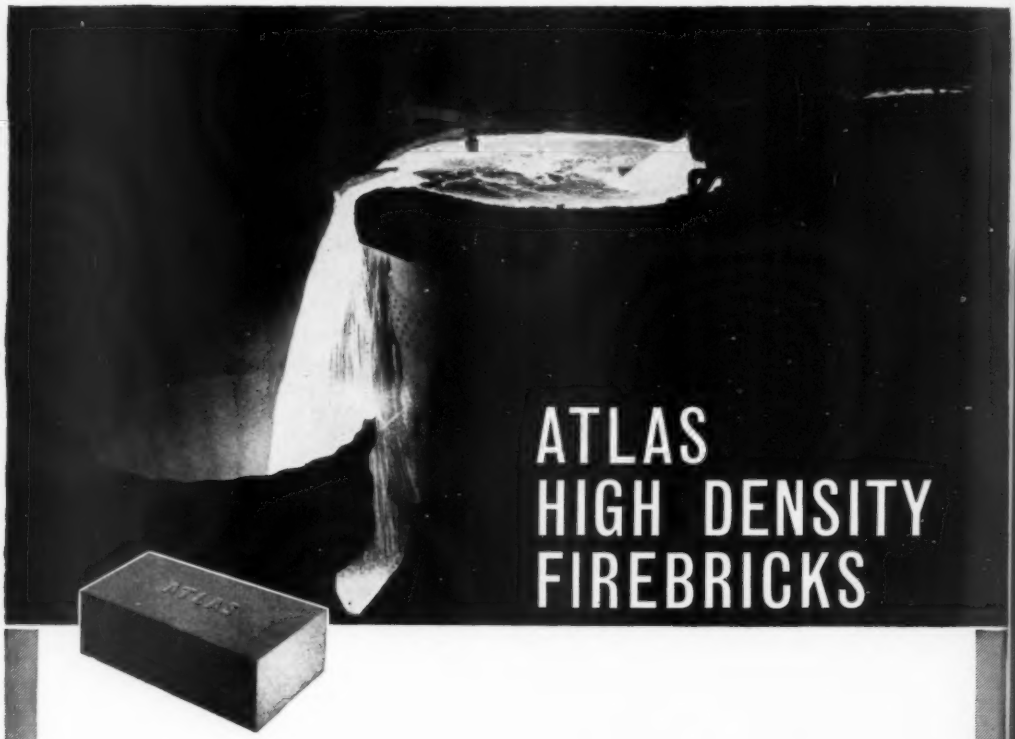
AIR COMPRESSORS : SHOT BLAST PLANTS : RUMBLING BARRELS FURNACES : DUST EXTRACTION EQUIPMENT, ETC. ETC. AVAILABLE FROM STOCK.

THOS. W. WARD LTD

ALBION WORKS · SHEFFIELD · Phone 26311

LONDON OFFICE: BRETTENHAM HOUSE · STRAND · W.C.2

PP19



ATLAS HIGH DENSITY FIREBRICKS

No firebrick can withstand high temperatures and heavy loads indefinitely.

But **ATLAS HIGH DENSITY** Firebricks have the maximum life possible under such conditions. They have been produced specifically for ladle linings and are quite unique in their performance in bottoms and the striking areas. High crushing strength and great resistance to penetration, erosion and abrasion have been combined to ensure a long working life.

Use **ATLAS HIGH DENSITY** Firebricks and line less often.

ILLUSTRATION

Tapping a furnace at Abbey Melting Shop, Steel Company of Wales Ltd. Ladle Bottoms are ATLAS Firebricks.

UNITED FIRECLAY PRODUCTS LTD

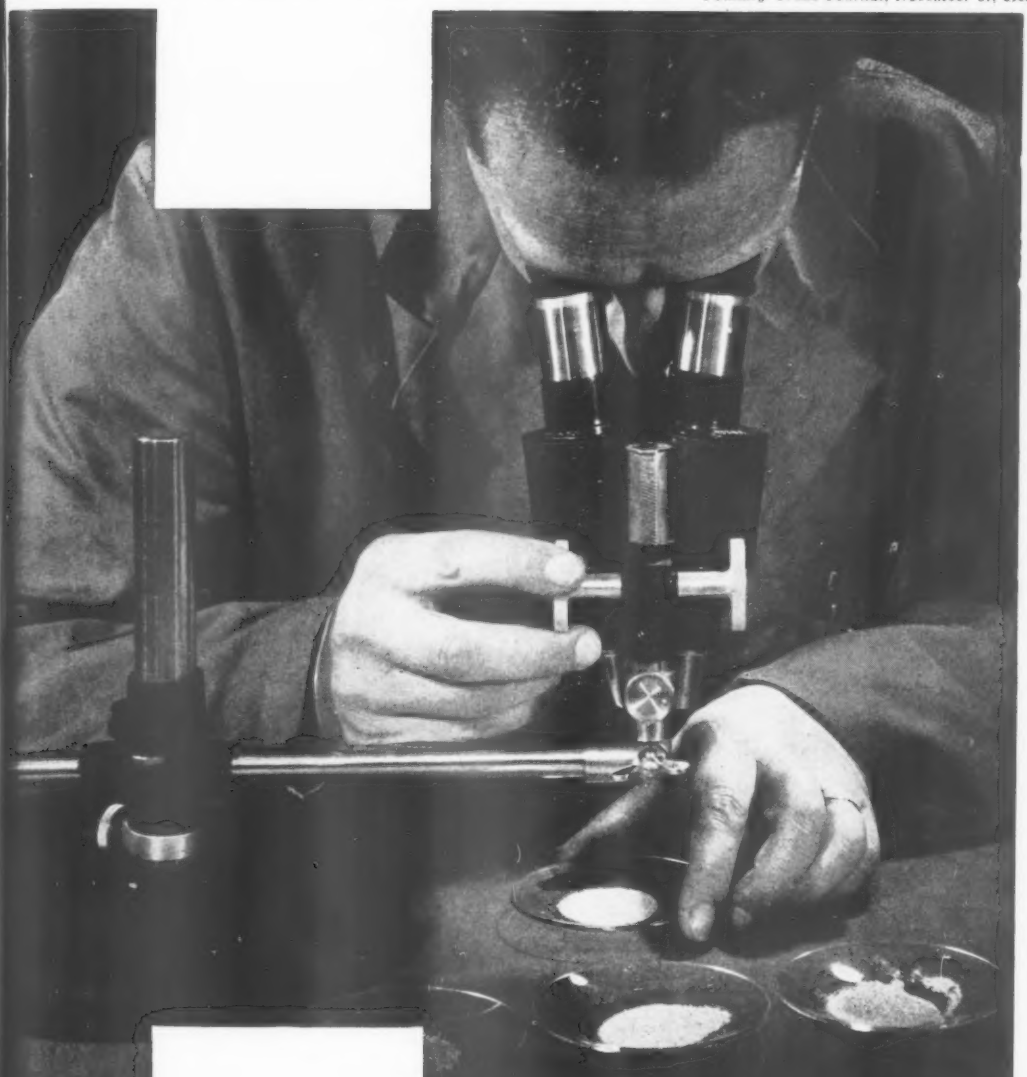
BATHVILLE · ARMADALE · WEST LOTHIAN

REGISTERED OFFICE · 140 West George Street · Glasgow C.2

Telephone: ARMADALE 313-316 Telegrams: "Combined" Armadale

A MEMBER OF THE WOODALL-DUCKHAM GROUP OF COMPANIES

960



+GF+

Routine checking of moulding and core sand properties is essential and guarantees improved surface finish of castings, fewer rejects and economical use of sands. The production of quality castings begins with sand testing.
In many countries of the world preference is given to

Sand Testing Equipment.

Easy handling - reliable test results - pleasing appearance.

George Fischer Limited, Schaffhausen, Switzerland

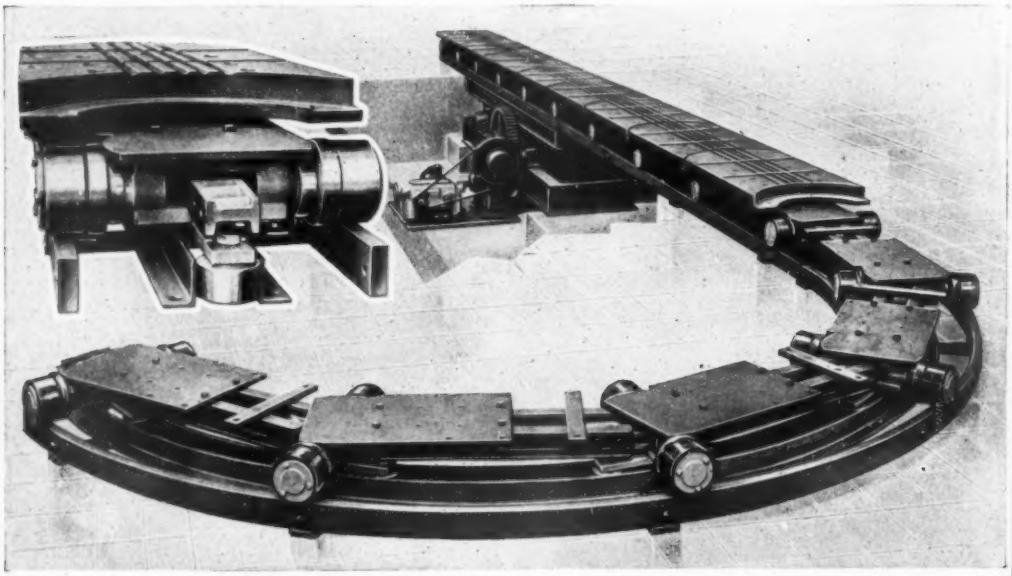
Telephone: (053) 5 60 31 / 5 70 31 Telegrams: Geofischer

Agents for U.K. and Eire:
Foundry Suppliers
25A, Cockspur Street,
London, S.W.1
Telephone: TRAfalgar 1141

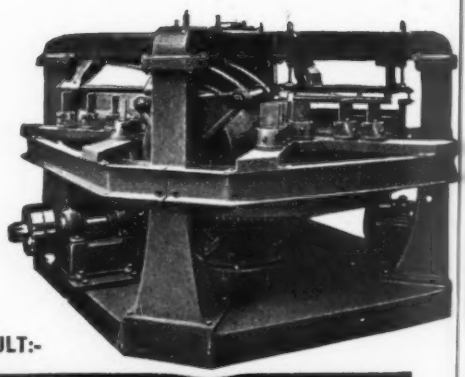
FOUMEC

MOULD CONVEYOR.

PLANTS



TYPICAL MOULD CONVEYOR SHOWING SOME C.I. PLATES REMOVED, ALSO DETAILS OF AXLES. SIZES TO REQUIREMENTS



THESE SAND MILLS, S.B. TYPE (SUPER BAILLOT) CONTINUOUS OR SEMI-CONTINUOUS ARE MADE FOR OUTPUTS FROM 1 to 30 TONS OF SAND PER HOUR.— THEY ARE THE HEART OF MECHANISED UNITS.

FOR ALL FOUNDRY MECHANISATION PROBLEMS CONSULT:-

FOUNDRY MECHANISATIONS (BAILLOT) LTD.
Main Offices & Works: **DENBIGH ROAD, BLETCHLEY, BUCKS.**
Tel.: BLETCHLEY 3354 *Regd. Office:* 29, CROMWELL ROAD, LONDON, S.W.7. *Grams:* "FOUMEC" BLETCHLEY.

FM 3.

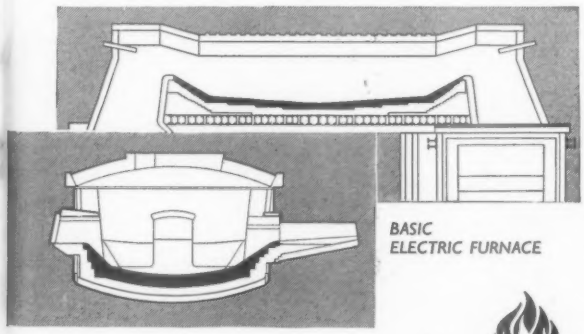
New 'GR' PROVED

MAGNESIA MONOLITH

for Open Hearth & Electric Furnace Bottoms

RAMAG has been proved in open hearths, electric furnaces for the working monolith, taphole construction, launders, fettling, patching, etc. Wholly Dead Burnt Magnesia, graded to give a dense, hard, slag and abrasion resistant hearth. RAMAG is designed to be rammed up wet, and installation, drying-out and burning-in can be carried out with no risk of hydration. Application instructions on request.

BASIC O.H. FURNACE



BASIC ELECTRIC FURNACE

The GENEFAX Group for Everything in Refractories

GR

What is RAMAG?

GENERAL REFRACTORIES LIMITED · GENEFAX HOUSE · SHEFFIELD 10 · SHEFFIELD 31113

413

GO DEAD SLOW...

AND SPEED PRODUCTION

Clayton cranes with micro-speed units are the very latest development in providing reliable dead slow manoeuvring (hoisting, lowering, travelling) on alternating current. In foundries, where precise and sensitive control is needed for the handling of moulds and cores, Clayton cranes with micro-speed units will give long reliable service—with the utmost safety. Unlike many other methods of obtaining slow speeds on alternating current, no complicated control system is necessary. Standard controls are employed in the form of push-buttons or controllers, whichever is preferred.

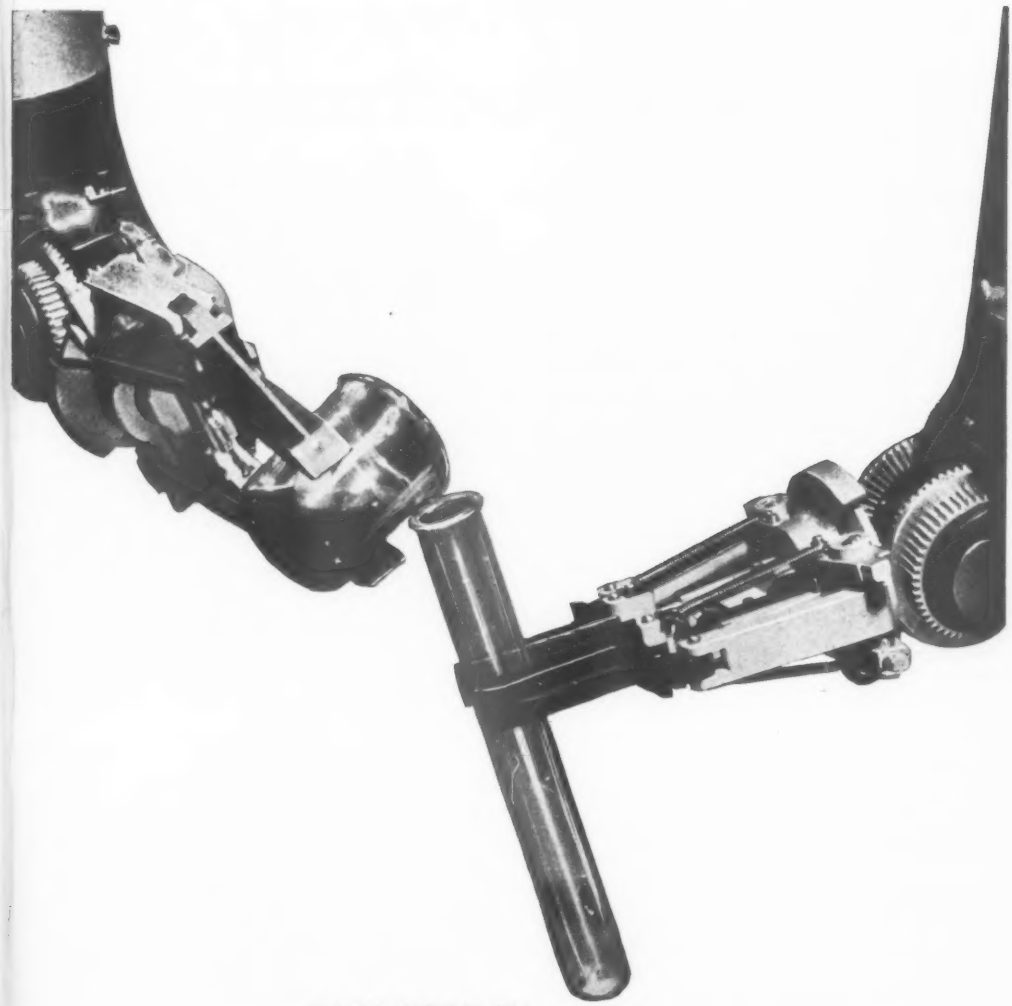
MAY WE SEND CATALOGUES?

Messrs. John Harper & Co. Ltd.

CLAYTON

ELECTRIC OVERHEAD CRANES AND HOISTS

THE CLAYTON CRANE & HOIST CO. LTD.
(Dept. 10) Irwell Chambers East, Union Street, Liverpool 3
Telephone: CENtral 1141 (4 lines)
Telegrams: 'CLAYMAG' Liverpool
London Office: 12 Duke St., St. James's, S.W.1.
Telephone: Whitehall 6988



EASY DOES IT!

Accurate and precise manipulation by mechanical hands of radio-active solutions demand the highest standards of engineering practice and inventive genius. So, too, the production of refined iron, where only the very strictest metallurgical control can achieve the consistently reliable results demanded by discerning foundrymen.

BRADLEY & FOSTER LIMITED

FOR QUALITY CONTROLLED REFINED PIG IRON

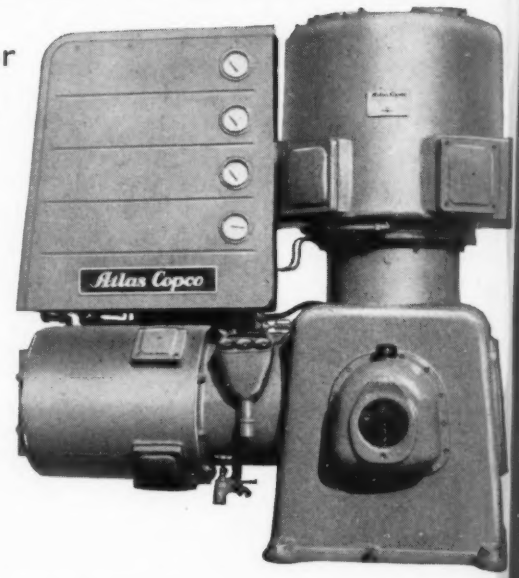
DARLASTON · STAFFORDSHIRE

Telephone: JAMes Bridge 2353 (7 lines) Telegrams: BRADLEY DARLASTON

A member of the Staveley Coal & Iron Co. Ltd. Group

Here's Air Power at ROCK BOTTOM cost

ER6 Heavy-Duty Compressor for reliable 3-shift operation



Atlas Copco's ER6 compressor delivers air at the lowest possible cost. Designed to incorporate *every* economy factor, it combines the lowest possible running costs with low installation costs and a space saving design.

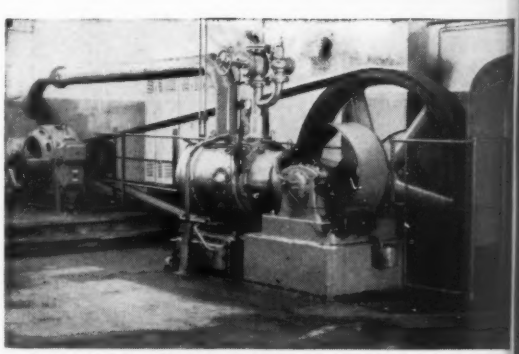
The ER6 delivers 1,075 cfm at 100 psi (30.4m³/min at 7 kg/cm²) for a power consumption that is absolutely rock bottom. Thanks to a new type of intercooler, water consumption is only 440 imperial gallons (2,000 litres) per hour—a *quarter* the consumption of most similar machines. The ER6 is compact. Occupying only half the space usually required for machines of its capacity, it saves expensive factory space. In addition, installation costs are lower as new, cheaper installation methods are employed.

RANGE OF STATIONARIES

From 2.5 to 20,000 cfm, there is an Atlas Copco stationary compressor to suit every requirement. Whatever the design factor—compactness, low installation cost, low operating cost, or a combination of all three—Atlas Copco stationaries are high-performance machines you can rely on.

Sales and Service in Ninety Countries

Represented in ninety countries, Atlas Copco is the world's largest organisation specialising solely in compressed air equipment. Products include stationary and portable compressors, rock drills, loaders, hoists, air tools and paint-spraying equipment. Wherever you are, the international Atlas Copco group offers expert advice and provides a complete after-sales service.



Built to last. This Atlas Copco compressor was installed at the Bofors engineering works (Sweden) in 1907. It is still in operation.

WRITE FOR THE LEAFLET Leaflet E1127 gives full details of the ER6 compressor. Write for a copy to your local Atlas Copco company or agent or Atlas Copco AB, Stockholm 1, Sweden.

Atlas Copco puts compressed air to work for the world

Atlas Copco AB, Stockholm 1, Sweden. In the U.K.: Atlas Copco (G.B.) Ltd., Hemel Hempstead, Herts

960

Bofors
n.

vorld
sc.

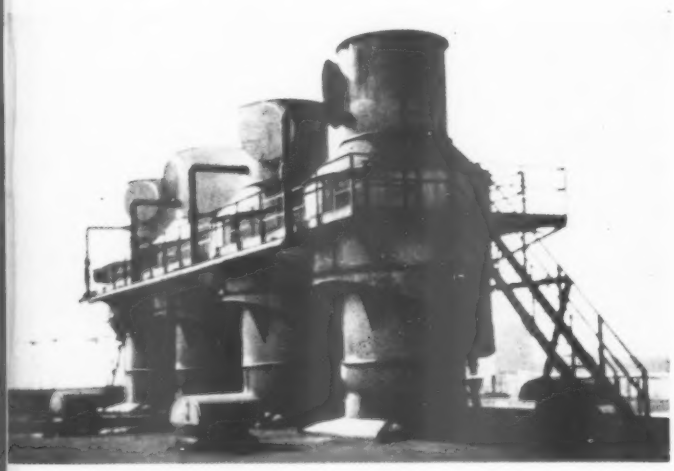
T

D
m
m
a
o

The 'CLEAN AIR ACT' demands EFFICIENT dust and grit suppression

Instal... TITAN WET ARRESTERS

Designed by the principal Cupola manufacturers in the U.K. with more than 40 years experience and proven practice in all aspects of Cupola operation.



Many Foundrymen think Wet Spark Arresters are a recent development and because of troubles experienced with some installations, usually caused through bad design, they tend to regard them with suspicion.

We are proud that FORD MOTOR CO. selected **TITAN** Wet Spark Arresters for the **4 TITAN** 30 ton per hour Hot Blast Cupolas which we installed in their new Thames Foundry, the most modern in Europe.

These are illustrated, the second Cupola from the left is "blowing" —note the complete absence of dark smoke, sure proof of efficiency.

Photo completely untouched taken during normal operating conditions.

CONSIDER THESE ADVANTAGES

- **Reduce Maintenance or Replacement of Gutters, Drains and Roof Sheeting**
- **Protection of Paintwork, Roof Structures and Coatings, Glazing, etc.**
- **Eliminate Fire Hazards. It's worth approaching your Insurance Company!**
- **Improve Working Conditions in Adjacent Workshops Enamelling Plants, Offices.**

THE CONSTRUCTIONAL ENGINEERING CO. LTD

DESIGNERS & ACTUAL BUILDERS OF EFFICIENT FOUNDRY PLANT

TELEGRAMS STRUCTURAL

TITAN WORKS CHARLES HENRY ST. BIRMINGHAM 12

TELEPHONES MIDLAND 4753-4

Send for brochure No. 213 TO-DAY

NO. 10 PREPARED BLACKING

PHŒNIX

BLACKING or PLUMBAGO MIXTURE for the CO_2 process

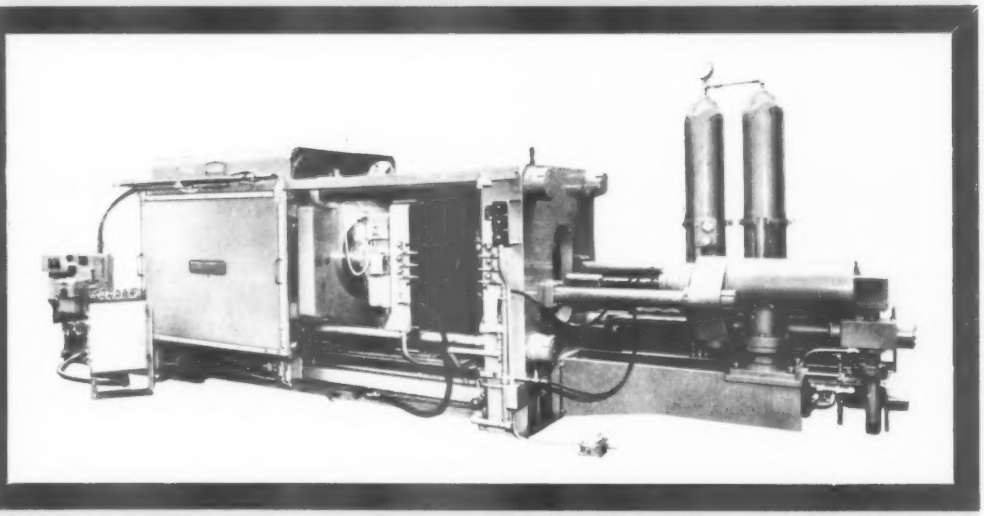
STEELMOL *for STEEL and SPECIAL IRON CASTINGS*

HIGH CARBON BLACKING · CEYLON PLUMBAGO
TERRA FLAKE · COAL DUST · GANISTER AND
"ALUMISH" FOR ALUMINIUM
Non-Silica PARTING POWDER

JAMES DURRANS & SONS LTD

PHŒNIX WORKS & PLUMPTON MILLS · PENISTONE · near SHEFFIELD
Telephone : PENISTONE 3121 and 3122 *Telegrams :* BLACKING, PENISTONE

perfection under pressure



the PECO 60.DC.20

pressure die casting machine

NOW WITH HIGH SPEED INJECTION!

LOCKING FORCE	750 tons
SHOT CAPACITY	26 lbs. ALUMINIUM
	75 lbs. BRASS

INJECTION SPEED INCREASED BY OVER 100%
Two phase injection
Adjustable opening stroke
Double accumulator
Recirculation to eliminate cavitations

PECO MACHINERY SALES (Westminster) LTD.,
28 Victoria Street, London, S.W.1
Sales: ABBey 1793.
Service: Macaulay 1212.

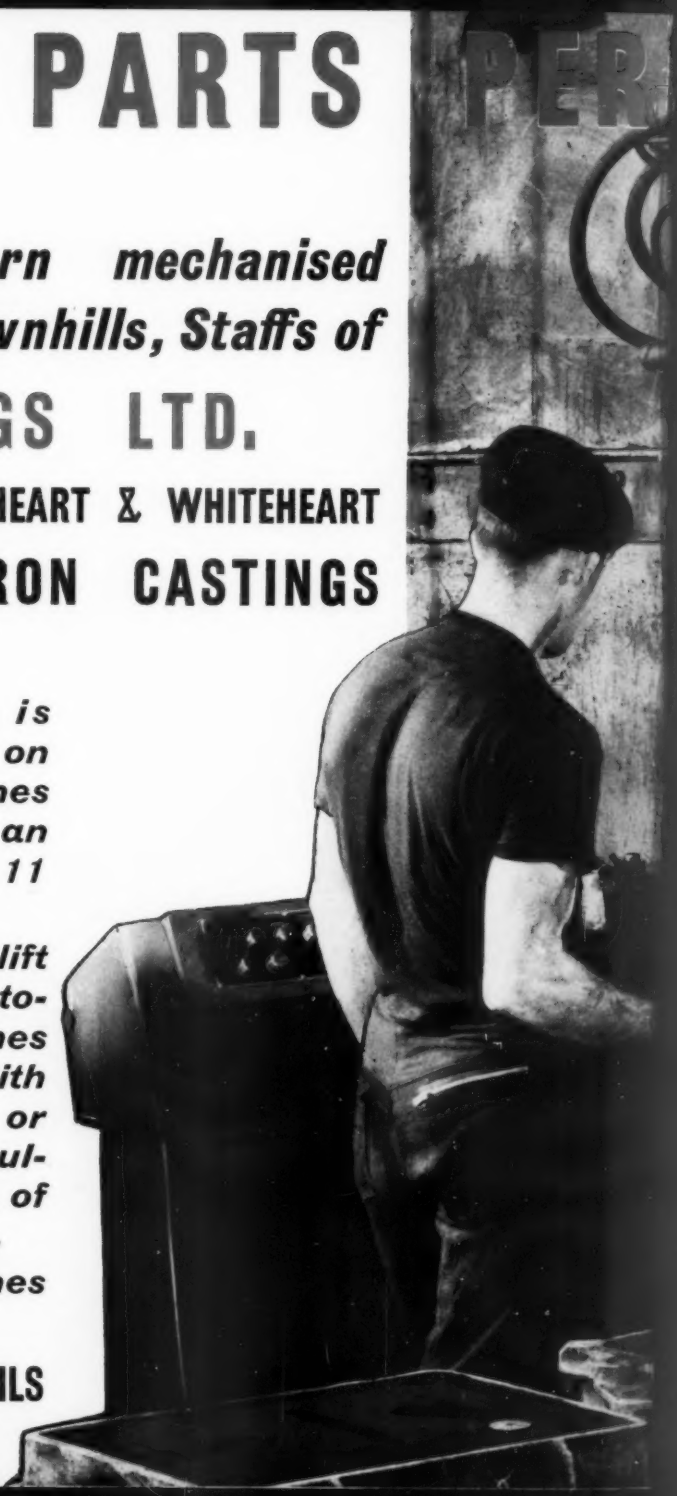
1,000 PARTS PER

In the modern mechanised foundry at Brownhills, Staffs of

CASTINGS LTD.

FAMOUS FOR BLACKHEART & WHITEHEART

MALLEABLE IRON CASTINGS



This production is being achieved on Type BQ1 Machines operating with an automatic cycle of 11 seconds.

In addition to Pin-lift as shown in photograph these machines are available with roller-lift, jaw-lift or "finger" lift for simultaneous production of copes and drags.

BQ3 & BQ5 machines also available.

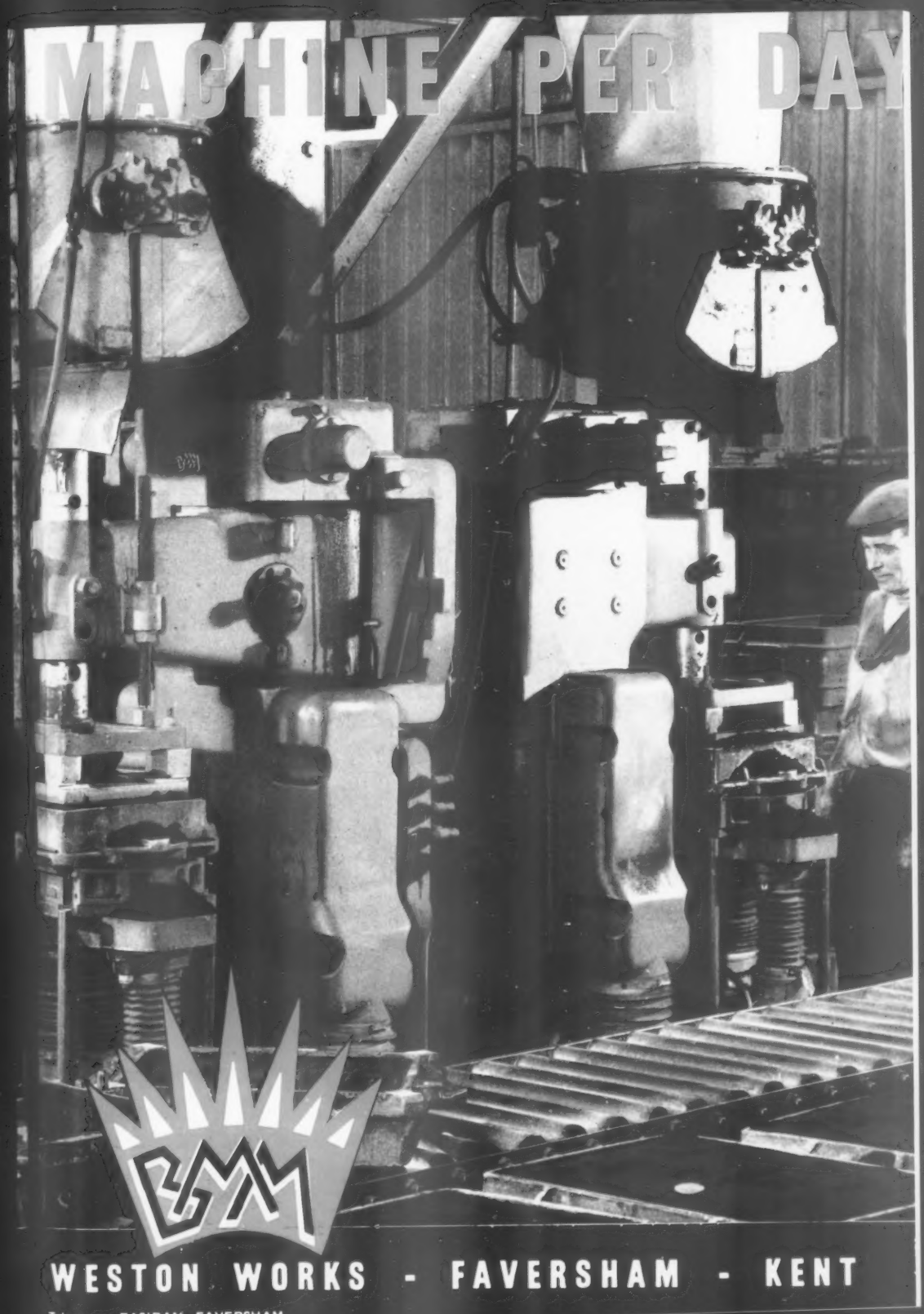
WRITE NOW FOR DETAILS

BRITISH MOULDING MACHINE CO. LTD.

Telephone: FAVERSHAM 2246/7/8

D.

46/7/8

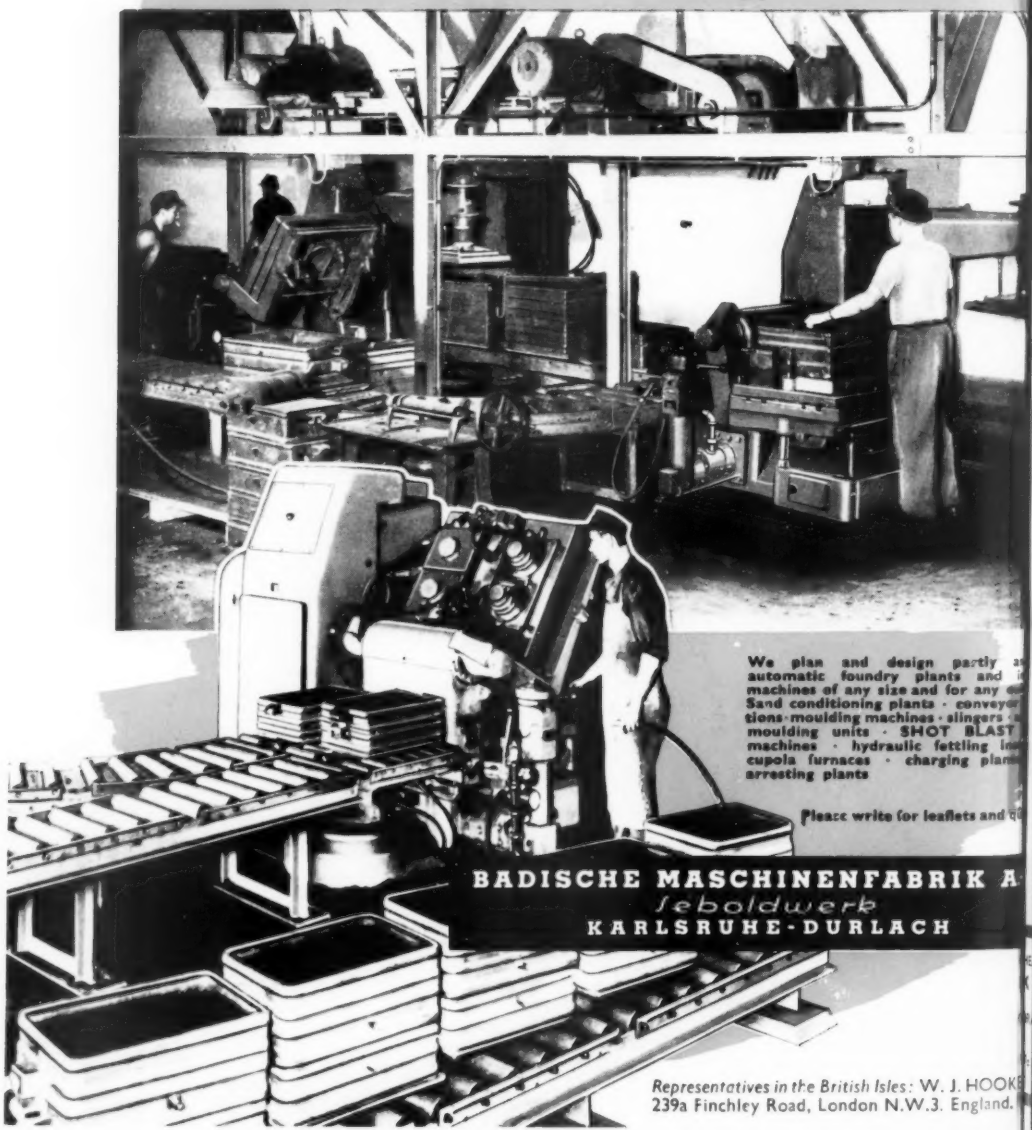

MACHINE PER DAY
EASIRAM
WESTON WORKS - FAVERSHAM - KENT
Telegrams: EASIRAM, FAVERSHAM

BMD

JOLT SQUEEZE AND TURNOVER MOULDING MACHI

semi-automatic type M
fully automatic type A

Maximum ramming power obtained by powerful SHOCK
jolt and over size squeeze
Safety in operation ensured by sturdy
The above reasons make the machines most suitable for incorpor
in fully and semi-automatic moulding



We plan and design partly a
automatic foundry plants and
machines of any size and for any
Sand conditioning plants · conveyor
tions · moulding machines · slingers
moulding units · SHOT BLAST
machines · hydraulic fettling
cupola furnaces · charging plan
arresting plants

Please write for leaflets and

BADISCHE MASCHINENFABRIK A
Seboldwerk
KARLSRUHE-DURLACH

Representatives in the British Isles: W. J. HOOK
239a Finchley Road, London N.W.3. England.

NO

HEAD
K E
BRAN
Tele
E

Here's a NEW Blacking

– and it's a

WINNER!

No 47

No 47 is not 'just another Blacking'! It is an entirely new type of Blacking and has been fully approved by some of the largest Foundries in the Country. Foundries making really large moulds in Loam or Dry Sand will find it an exceptional blackwash in every way —no limit to weight and *no* section too thick to produce a perfect strip.
It is adequately bonded and has good penetration.

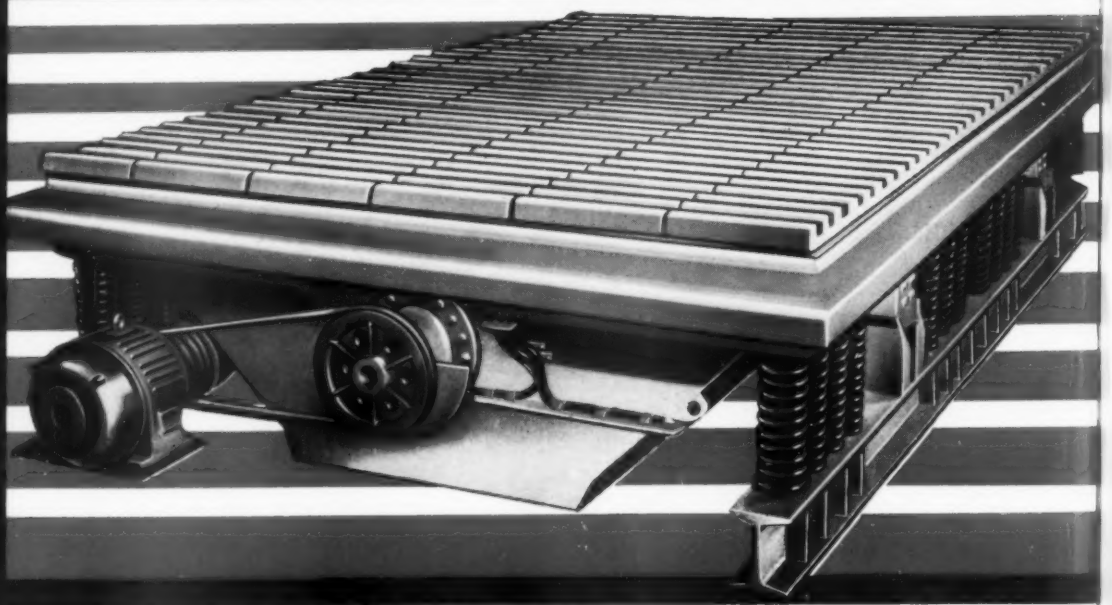
– the ACE of BLACKINGS – a *FREE* sample on request.

WILLIAM CUMMING & CO. LTD.

HEAD OFFICE:
KELVINVALE MILLS MARYHILL · GLASGOW N.W.
Telephone: MARyhill 1033/4

BRANCHES AT:
FALKIRK · CHESTERFIELD DEEPFIELDS
Telephone: FALKIRK 161 CHESTERFIELD 5314/5 BILSTON 41208/4

SHAKE WITHOUT SHOCK



THE HEWITT-ROBINS FLOATEX FOUNDRY SHAKEOUTS

AS SUPPLIE
THE FORD M
COMPAN
THAME
FOUNDR

It is a distinguishing feature of FLOATEX Shakeouts that the vibrations, whilst fast and thorough, are developed without shock. This has the double advantage of preventing damage to the face of the moulding box, and also of being kind to the castings. As the vibrations themselves are fully absorbed by supporting springs and are thus prevented from reaching the foundations only simple foundations are required. Sizes range from a single unit 2ft. by 2ft. up to a sextuple unit 17ft. by 34ft., capacity 150 tons. The size illustrated is a 12ft. by 10ft. duplex unit, capacity 45 tons. Floatex Shakeouts can be engineered into any existing Foundry Layout.

STONE PLATT GROUP

Made under licence from Hewitt-Robins Incorporated by

THE COLEMAN-WALLWOR
FOUNDRY EQUIPMENT DIVIS
of STONE-WALLWORK LIMIT

VICTORIA STREET, S.W.1. Telephone: ABBEY 7681-7 Telegrams: STONWALABB, SOWEST, LONDON

The Tornado-Solivore Wet Scrubber offers over 99% efficient collection of the finest dusts and fumes.

when the problem's

DUST OR FUMES

turn to 'Tornado'

For over 60 years, Industry has turned to 'Tornado' to settle dust and fume extraction problems. Keith Blackman were the first in the country to use air extraction as the basis for dust and fume exhaust systems. With this record and this experience they are the natural choice for your problem. You too, should 'turn to Tornado' for advice on *complete plants* or individual equipment. There is a qualified representative in every industrial area.

Keith Blackman Ltd

Dust and Fume Control Division

MILL MEAD ROAD, LONDON N17 TOTTENHAM 4522 TA 3691/1071

CLOTH FILTRATION

- Tornado-Fischer patented, self-cleaning filters
- Type 270/540 pocket filters
- Series TF dust collectors
- Series T self-contained dust collectors

WET FILTRATION

- Solivore patented wet scrubbers
- Hydro precipitator wet washers

CENTRIFUGAL FILTRATION

- Cyclogal high efficiency, low resistance cyclones
- Cyclogalax 'straight through' cyclones
- Standard cyclones
- PD-KB tubular collectors

ELECTROSTATIC PRECIPITATION

- PD-KB electro-static precipitators

FANS

- Paddle type industrial fans

cores

cores

blown
hand-rammed
extruded
sand-slung
jolted

The binder for them all is THOR SB-109. A versatile binder, indeed; and what is more, this Phenol/Formaldehyde resin is also extremely tolerant of sand condition. Thus it is the answer to the problem of finding a binder which can be used with hot sand (and also wet sand) and still give excellent performance.

Note, too, these other advantages of THOR SB-109:

- It can be used in the hot core-box technique to produce dimensionally stable cores, ready for use, in 2 minutes.
- Suitably diluted, it can be used as a mould or core spray to give superior casting finish.
- It can be used in sand mixes made in any normal foundry mixer and, suitably adjusted, will perform satisfactorily under the most exacting foundry conditions.

Other Core Binders in the THOR range include:

THOR SB-14: A high performance, special purpose U/F resin binder.

THOR M-1288: A complete binder imparting both green and dry strength.

THOR M-1326: An air-setting resinous binder of high performance.

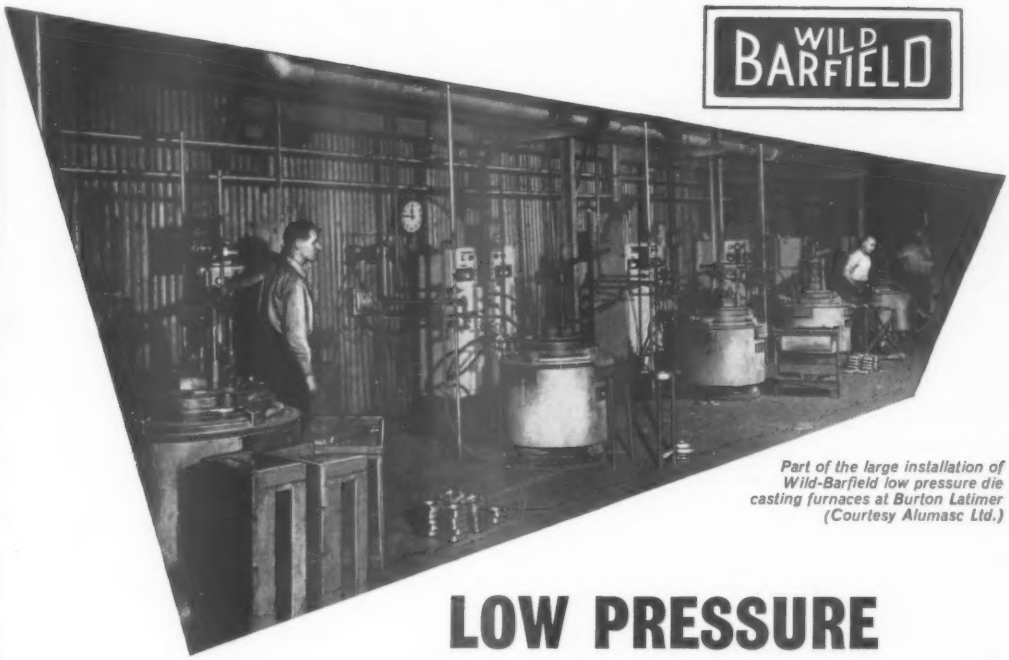
THOR
FOUNDRY RESINS

T26

Why not write to us for full details?

LEICESTER, LOVELL & CO. LTD.,
North Baddesley, Southampton
Tel: Rownhams 2131 (8 lines)

WILD BARFIELD



Part of the large installation of Wild-Barfield low pressure die casting furnaces at Burton Latimer (Courtesy Alumasc Ltd.)

LOW PRESSURE ALUMINIUM DIE CASTING FURNACES*

(Mains Frequency Induction Heated)

Simple to service
No elements to burn out
No channels to clean
No metal contamination
Accurate temperature control

Over 30 furnaces supplied to one well-known American Motor Manufacturer and currently used for production of Aluminium engine castings

ELECTRIC WILD BARFIELD FURNACES

FOR ALL HEAT-TREATMENT PURPOSES

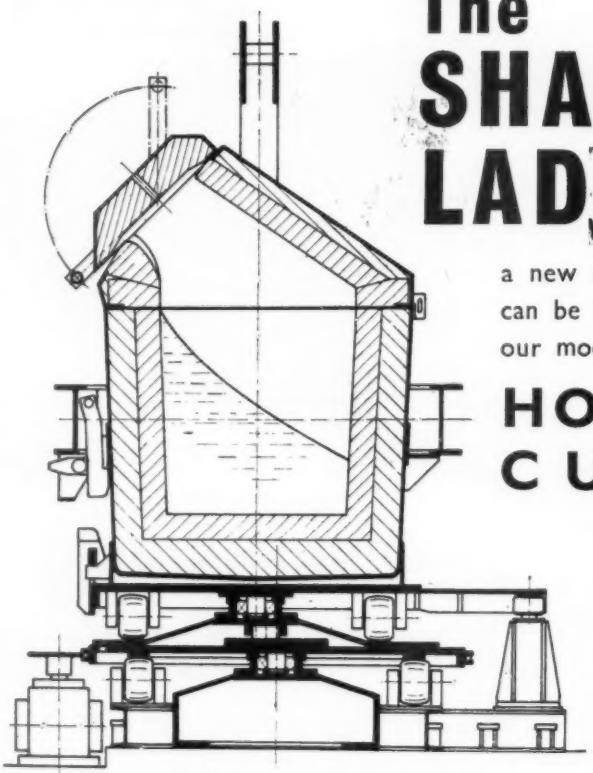
**Developed in conjunction with Alumasc Ltd. and specially designed for their low pressure die casting process.*

WILD-BARFIELD ELECTRIC FURNACES LIMITED

ELECFURN WORKS · OTTERSPOOL WAY · WATFORD BY-PASS · WATFORD · HERTS · TELEPHONE: WATFORD 28091

WB.IIF

The SHAKING LADLE



World licence from Stora Kopparbergs/ Sweden for the shaking process

a new metallurgical instrument can be used in connection with our modern

HOT BLAST CUPOLAS

for the total desulphurization, carburization and alloying of molten metal.

●

Produces high quality cast iron from inexpensive low quality scrap.

We also manufacture :

HOT-BLAST CUPOLAS FOR FOUNDRIES AND STEELWORKS FOR ACID AND BASIC OPERATION
GAS CLEANING PLANTS FOR CUPOLAS FOR DRY AND WET OPERATION
PIG CASTING MACHINES
MODERN MIXING AND CHARING EQUIPMENT FOR ONE OR TWO MAN OPERATION COMPLETE FOUNDRIES DESIGNED AND EQUIPPED

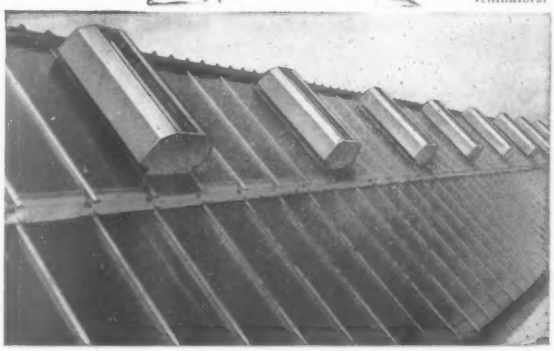
We are interested in co-operation with a suitable British manufacturer as a sublicensee.

GHW

GESELLSCHAFT FÜR HÜTTENWERKSANLAGEN m.b.h.
DUSSELDORF Kaiserswerther Strasse 105, Ruf Sammelnummer 490021

balanced approach to ventilation

Stack roof ventilators.



In planning ventilation, many factors demand study. Outlet area, airflow, velocity, overall volume, air temperature, seasonal fluctuations. All these must be brought into balanced relationship before the type, location and number of ventilators is finalised. Hills are continuously assessing such factors, opening the way to better working conditions—*better production*—in foundries, rolling mills, factories. Let Hills Technical Department answer *your* Ventilation problems.

HILLS (WEST BROMWICH) **LIMITED**

ALBION ROAD, WEST BROMWICH, STAFFS.
Telephone: West Bromwich 1811 (15 lines)

London: Chapone Place, Dean Street, W.1. Telephone: Gerrard 0526/9

Branches at: Manchester, Bristol, Newcastle-on-Tyne, Glasgow

V9

Strong and accurate cores

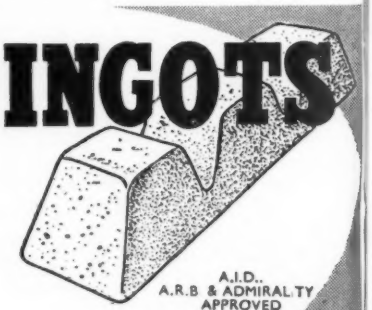
ALMARINE core oils bind sand evenly and firmly so that accurate cores which stand up to considerable handling are produced with short ovening times. Sand mixes using ALMARINE have a long bench life and are equally adaptable to large and small cores—from the same unit mix.

use **FLETCHER MILLER** core oils

FLETCHER MILLER LTD. ALMA MILLS · HYDE · CHESHIRE
Telephone: Hyde 3471 (5 lines) *Telegrams: EMULSION, HYDE*

NON-FERROUS INGOTS

SINCE 1888



A.I.D., A.R.B & ADMIRALTY APPROVED

- GUNMETAL • BRASS
- PHOSPHOR-BRONZE
- LEAD-BRONZE
- BRAZING METAL
- MANGANESE-BRONZE
- ALUMINIUM-BRONZE
- NICKEL SILVER • ALUMINIUM

ALSO SELECTED SCRAP METALS

THE CITY CASTING & METAL CO. LTD.
BARFORD STREET · BIRMINGHAM 5
Telegraphic Address: "Turnings" Birmingham *Telephone: MIDLAND 1645*

390

HIGH IMPACT

FOUNDRY GOGGLES

designed and tested in accordance with the findings of the sub-committee of the

FOUNDRY GOGGLES JOINT ADVISORY COMMITTEE TO THE MINISTER OF LABOUR

A PRODUCT

CONTACT YOUR USUAL SUPPLIER FOR FULL DETAILS

WM. STEPHENS & SONS LTD.

CRAWLEY ROAD, WOOD GREEN, LONDON, N.22.

'GREENS' OF KEIGHLEY

Specialists in . . .

FOUNDRY MELTING EQUIPMENT SINCE 1900

We supply everything from stockyard to the mould conveyor

Send your enquiries to:—

GEORGE GREEN & CO.

DEVONSHIRE STREET, KEIGHLEY, YORKS.

'Phone : 2518 KEIGHLEY *'Grams : "CUPOLA" KEIGHLEY*

AGENTS FOR LONDON AND HOME COUNTIES: MOLINEUX FOUNDRY EQUIPMENT LTD., MARLBOROUGH ROAD, LONDON, N.19

AGENTS FOR THE MIDLANDS: R. J. RICHARDSON & SONS LTD., COMMERCIAL STREET, BIRMINGHAM 1

AGENTS FOR SCOTLAND: ALBERT SMITH & CO., 60 ST. ENOCH SQUARE, GLASGOW, C.1

Protect your Foundry Workers with

PULSAFE FOUNDRY SAFETY EQUIPMENT

COMBINED FACE SHIELD & RESPIRATOR (top right), affords protection to eyes, face and lungs. Can be fitted with approved microfilter, light fume or non-injurious dust respirator as required.

"SUPERVIZOR 500" FACE SHIELD with wire mesh vizor and flame viewing plastic colour filter for protection against heat and glare, at the furnace face. The flame-proof fabric hood is an optional extra.

"EYECARE" PLASTIC GOGGLE with the extra wide angle non-inflammable acetate lens. Provides protection against dust and flying particles and the shatterproof lens is easily replaceable.

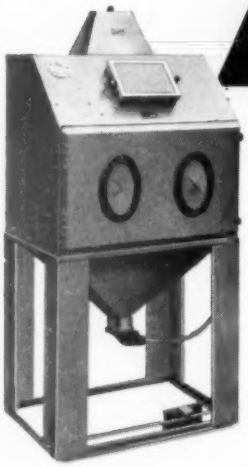
FURNACEMEN'S LEGGINGS—specially designed to give protection with comfort to foundrymen, welders and others who are exposed to the risk of burns on the legs and feet.

SAFETY PRODUCTS LIMITED

HOLMETHORPE AVENUE · REDHILL · SURREY TEL: REDHILL 4394/5

PULSAFE equipment embraces a wide variety of personal safety solutions —send for full details:

JACW/0/2



Guyson

LIGHT INDUSTRIAL SHOT BLAST EQUIPMENT

★ **REMOVES** Hard Scale and Discoloration

★ **CLEANS** Castings for Inspection

★ **MATT FINISHES** All types of metal.

(particularly good for Fine Finishing on Shell Moulded Castings).

The increasing use of new casting techniques makes Fine Finishing of metal surfaces most important.

The Model 400/40 GUYSON SHOTBLAST CABINET illustrated will shotblast the surface of metal parts perfectly in a few seconds. Send us samples for test treatment in our demonstration machine and you will quickly realise the potential of these very economical Light Industrial Shotblast Machines.

Please send for Bulletin 276 (s)

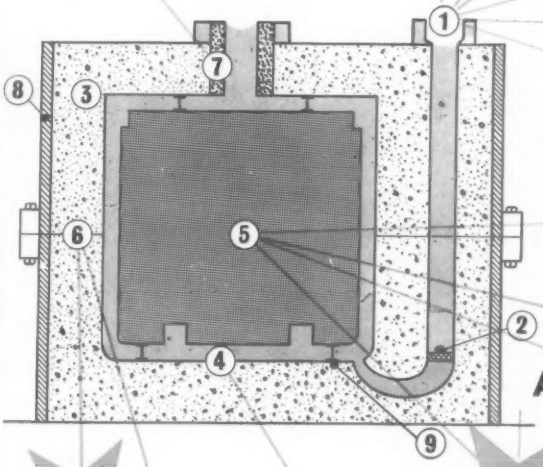
GUYSON INDUSTRIAL EQUIPMENT LTD.,

North Avenue, Otley, Yorkshire

Tel: Otley 2456/3271 Grams: Guyson, Otley, Yorks.

The Only Complete SERVICE TO THE FOUNDRY

ALICO
CUPRO
ALINOR
ALSICA
CODEGA
PURIC
CODEOX
CRULIN
ATMOSOL
CRUDOL
CRUDEX
BEECRO
BEECROL
SILVERSKIN



Key to Sectional Drawing of Mould

		Send for booklet No.
1	Metallurgical Control use of Fluxes	3
2	Clean Metal by using Ceramic Strainer Cores and Discs.	4
3	Coal Dust additional to Facing and Backing Sand	1
4	Silverskin Blackings, Plumbago and Mould Dressings.	1
5	Cores using Crulin and Crudol Core Binders (Oil Bonded, Air Setting Cereal or CO.2 Binders).	2
6	Moulds Parted with Beecro Silica Free Parting Powder or Beecrol Parting Liquid.	1
7	Casting Feeding with Alsica Exothermic Feeder Heads.	4
8	Moulding Boxes supplied by B.F.U.	5
9	Chaplets, Studs, etc.	

is provided by—

BRITISH FOUNDRY UNITS LTD.,

FOR THE ONLY COMPLETE SERVICE TO THE FOUNDRY

RETORT WORKS **CHESTERFIELD**

Telephone: 4157/8 Telegrams: "RETORT"

The latest, largest, most powerful

SPECIFICATION

Mould size (dimensions of sand block): 22" x 16".
Cope depth: 4". Drag depth: 4".
Squeeze pressure: 28,500 lbs.
Oil pressure: 1,250 p.s.i.
Piston Diameter: 5½".
Piston Stroke: 17⅛"
Total Weight (Machine, Pump, Panel): 7,000 lbs.

We invite your enquiries for our H.E.B. series and particularly for our brand new H.E.B.3 machine.

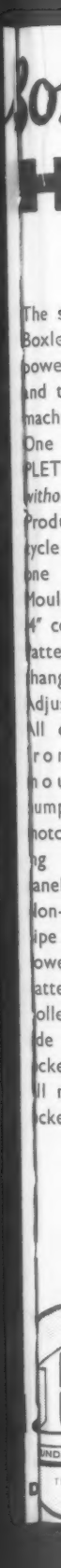
PATENTS APPLIED FOR IN ALL INDUSTRIAL COUNTRIES.

Other H.E.B. machines available:
H.E.B.1—Mould size 17" x 12"
H.E.B.2—Mould size 18" x 14"

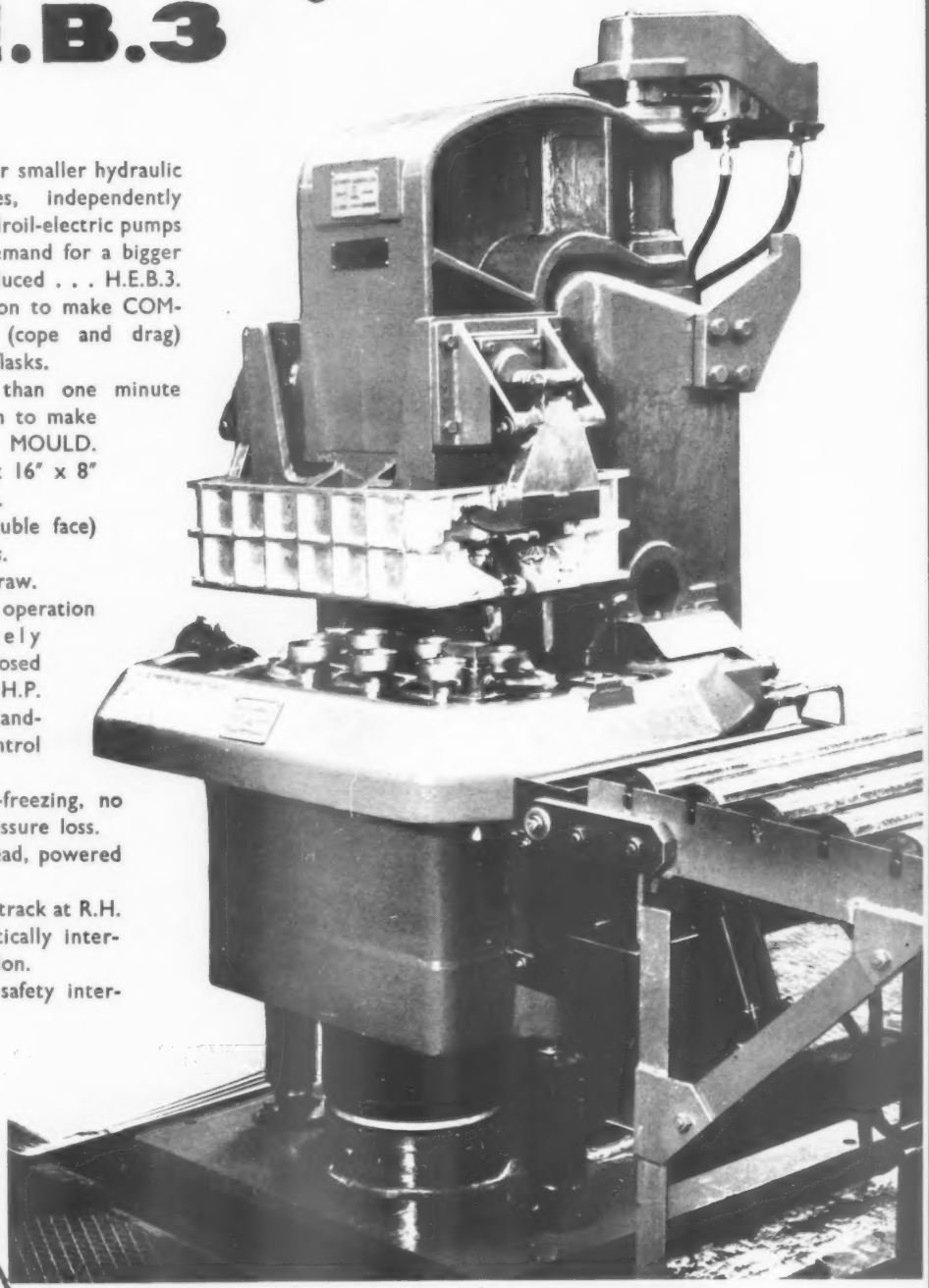
Foundry Equipment Ltd

LINSLADE WORKS, LEIGHTON BUZZARD, BEDFORDSHIRE, ENGLAND

Telephone: Leighton Buzzard 2441 (5 lines) Telegrams: 'Equipment,' Leighton Buzzard, England



Boxless Moulding Machine
H.E.B.3



The success of our smaller hydraulic Boxless Machines, independently powered with hydroil-electric pumps and the world demand for a bigger machine has produced . . . H.E.B.3.

One man operation to make COMPLETE MOULD (cope and drag) *without* boxes or flasks.

Production—less than one minute cycle for one man to make one COMPLETE MOULD.

Mould size: 22" x 16" x 8" (4" cope, 4" drag).

Pattern plate (double face) changed in *seconds*.

Adjustable slow draw.

All oil-hydraulic operation from separately mounted enclosed pump unit (7½ H.P. motor) and floor standing remote control panel.

Non-rusting, non-freezing, no pipe lines, no pressure loss.

Powered swing head, powered pattern carrier.

Roller strip-on to track at R.H. side with automatically interlocked lift-up section.

All movements "safety interlocked".

FE FOR FOUNDRY EFFICIENCY TRADE MARK

ASSOCIATE COMPANIES:—

AUSTRALIA: Foundry Equipment (Australia) Pty. Ltd., Elizabeth, S. Australia.
CANADA & U.S.A.: F. E. (North America) Ltd., Toronto.
SOUTH AFRICA: F. E. (South Africa) (Pty.) Ltd., Johannesburg.
SPAIN: "Foundry Equipment" Comercial Española, S.A., Madrid.

AGENTS IN ALL INDUSTRIAL COUNTRIES

HOW TO CUT high speed grinding COSTS

Two important factors
make Borolite wheels the obvious choice
for efficient high speed grinding
at lowest cost.
Firstly, as a Borolite wheel wears,
the new grinding surfaces presented to the work,
are equally efficient throughout its long life.
Secondly, our technicians will advise you
on the correct grade of wheel
for any particular job, to ensure
high speed production with maximum economy.

LUKE & SPENCER LIMITED
Viaduct Works - Broadheath - Altrincham - Cheshire

Phone : Altrincham 3281/2/3
Grams ; Emery, Altrincham

FAME for foundry equipment

gas & oil-fired crucible melting furnaces.

gas, electric and oil-fired annealing furnaces & ovens specifically for foundry use.

shell moulding and mould closing machines.

mould driers
sand driers
shell core blowers.

Efco-Diamond rotary reactor for desulphurising iron & steel.

Escher type hot-blast cupola plants.

Sinex vibratory equipment including knock-out grids, screens, feeders and conveyors.

gravity die casting machines.

silicon carbide and high alumina refractories.

die lubricants.

FAME

FOUNDRY & METALLURGICAL EQUIPMENT CO. LTD.
NETHERBY · QUEENS ROAD · WEYBRIDGE · SURREY
Weybridge 3891

Associated with Efco Ltd. and Stein & Akinson Ltd.

NRP 4080

SAVE

ON EYE PROTECTION

4/6 each complete

BIRFLEX

Pliable polythene frame.
Ventilated to prevent misting.
Wide vision, curved window.
Complete 4s. 6d. each.
Extra windows 1s. 6d. each.

This new Elliott range of safety visors is designed to take replaceable 'Celastoid' windows, which are tough, crystal clear, shatter proof, splinter proof, non-inflammable and washable. These replaceable windows prolong visor life, reduce the accident rate and safety bill. Windows also available in the following colours: Green 1659, Green Shade 6 and Anti-flash S.465.
Supplies ex-stock.

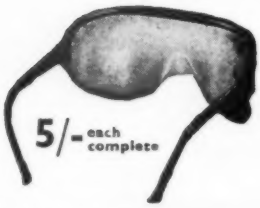
SUPAFLEX

5/- each complete

General purpose visor with soft pliable transparent P.V.C. frame.
Curved window for wide vision.
Can be worn over spectacles.
Ventilated to prevent misting.
Complete 5s. each.
Extra windows 1s. 9d. each.

BIRSHIELD

5/- each complete



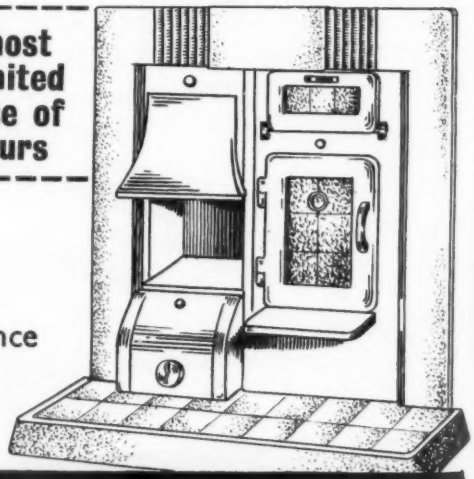
Spectacle type frame, preferred by female operators and when complete enclosure is not required.
Complete 5s. each.
Extra windows 1s. 9d. each.

E. ELLIOTT LIMITED

Head Office & Works,
315, Summer Lane,
Birmingham, 19:

Telephone:
ASTON Cross 1156-7-8-9.

Resists Heat up to 450°C | **As Durable as Porcelain** | ***Almost Unlimited Choice of Colours**



These characteristics are called for in the finish of any really up-to-date Heat Appliance but only in VITREOUS ENAMEL do you get ALL THREE together

*And in TRICO VITREOUS ENAMEL there is choice not only of Colour but of effect . . plain, mottled, marbled, shaded, lustre

TRICO *Vitreous Enamel*

THE RUSTLESS IRON CO. LTD.
The Leading Vitreous Enamellers to the Trade.

TRICO WORKS, KEIGHLEY, YORKS. Telephone 3737

Better Casting Quality

For the production of high grade castings CARBOFRAX * Denseners and Densening materials are second to none.
Used in place of metal chills, their inclusion in the mould ensures that castings have a combination of properties which cannot be obtained by other methods.

- **Trouble-free machining is ensured – no hard spots.**
- **A more homogeneous structure is produced.**
- **Complete absence of blow-holes.**
- **Easy stripping—CARBOFRAX denseners do not "burn-on"**
- **Castings are more wear-resistant.**

CARBOFRAX denseners in the mould of a large machine tool casting. (*Courtesy of Modern Foundries Ltd., Halifax*)

CARBOFRAX Denseners can be used with equal success on iron, steel, bronze and aluminium castings.

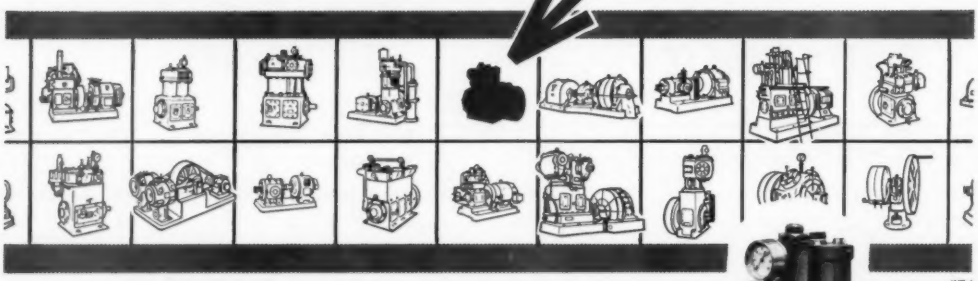
Write to us for details.

* *Regd. Trade Mark*

REFRACTORIES DIVISION

THE CARBORUNDUM COMPANY LTD
MILL LANE RAINFORD ST. HELENS
LANCASHIRE
Telephone RAINFORD 571

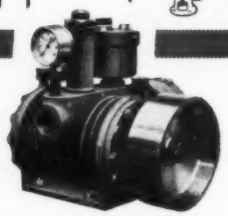
A compressor
or exhauster to suit your needs
from the wide range made by REAVELL



Ask us about the compressor or exhauster you require. We hold an extremely wide range of types and sizes—reciprocating, rotary and turbo—low, medium, high pressure or vacuum—for air and other gases.
Our machines are known throughout the world for their quality, efficiency and durability . . . and our manufacturing experience extends over 60 years.
Do not hesitate to ask our advice on your problem. We are always pleased to design and manufacture special machines to your instructions.

Reavell

REAVELL & CO. LTD.,
RANELAGH WORKS, IPSWICH, SUFFOLK
TELEPHONE: IPSWICH 56124
MAKERS OF COMPRESSORS AND EXHAUSTERS FOR ALL INDUSTRIES



A Rotary Compressor or Exhauster produced in seven sizes with a maximum of 15 lb. per sq. inch pressure or 20 in. Hg. vacuum and a capacity of from 1 to 59 cu. ft. per min.

For the world's finest
***HARDWOODS**
for patternmaking

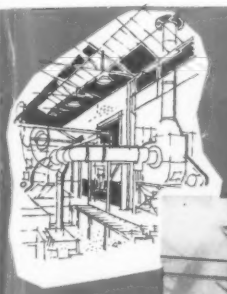
* *Including the famous* BSC *British Honduras Mahogany*

Call in

Gliksten

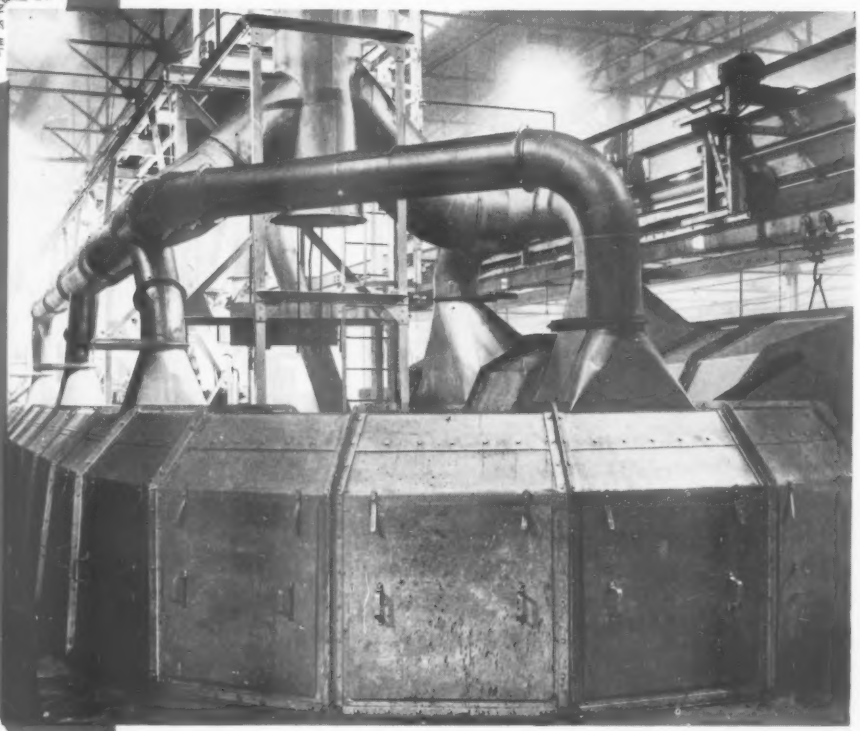
THE FOREMOST NAME IN TIMBER

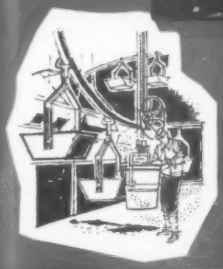
J. GLIKSTEN & SON (Hardwoods) LIMITED, Carpenters Road, London, E.15 *Telephone:* AMHerst 3300
Liverpool Office: 87, Lord Street. Telephone: Central 7576 and Victoria Dock, Citadel Street, Hull. Telephone: Hull 31144



CLEANAIR Ltd.

specialists in dust and fume extraction plant for the Foundry Industry





We will design, manufacture and erect complete plants for any foundry application. A Cleanair installation ensures efficiency, first class materials and workmanship at a competitive price. An inquiry will receive immediate and expert attention.

CLEANAIR LTD.

CLEANAIR

LIMITED

VENTILATING, DUST & FUME EXTRACTION ENGINEERS

LINSLADE, LEIGHTON BUZZARD, BEDFORDSHIRE

Telegrams: CLEANAIR LEIGHTON BUZZARD Telephone: LEIGHTON BUZZARD 7441-2

D

TWENTY-F

Foseco

'On-the-spot' diagnoses of problems

Foseco representatives are technically trained and always ready if necessary to take off their coats! They can diagnose a problem on the spot, find the cause of a particular defect and by practical demonstration show the remedy.

Backing Foseco representatives are superb laboratory and technical resources which can be called upon to provide "second opinions" or detailed service reports.

Foseco representation is organised to cover the whole of the U.K. and to form a vital link in the Foseco service to the foundry world.

WORLD WIDE SERVICE FOR FOUNDRYMEN

Covering Fluxes, Degassers, Grain Refiners, Deoxidants, Aluminium Removers, Magnesium Removers, Cupola Fluxes, Ferro Alloy Briquettes, Alloy Ladle Additions, Scavengers, Inoculating Compounds, Feeding Compounds, Diecasting Fluxes, Mould and Core Coatings, Die Dressings, Ingot Dressings, CO_2 Process Binders, Core Adhesives, Casting Plasters, Pattern Plasters, Refractory Washes and Core Breakdown Agents.

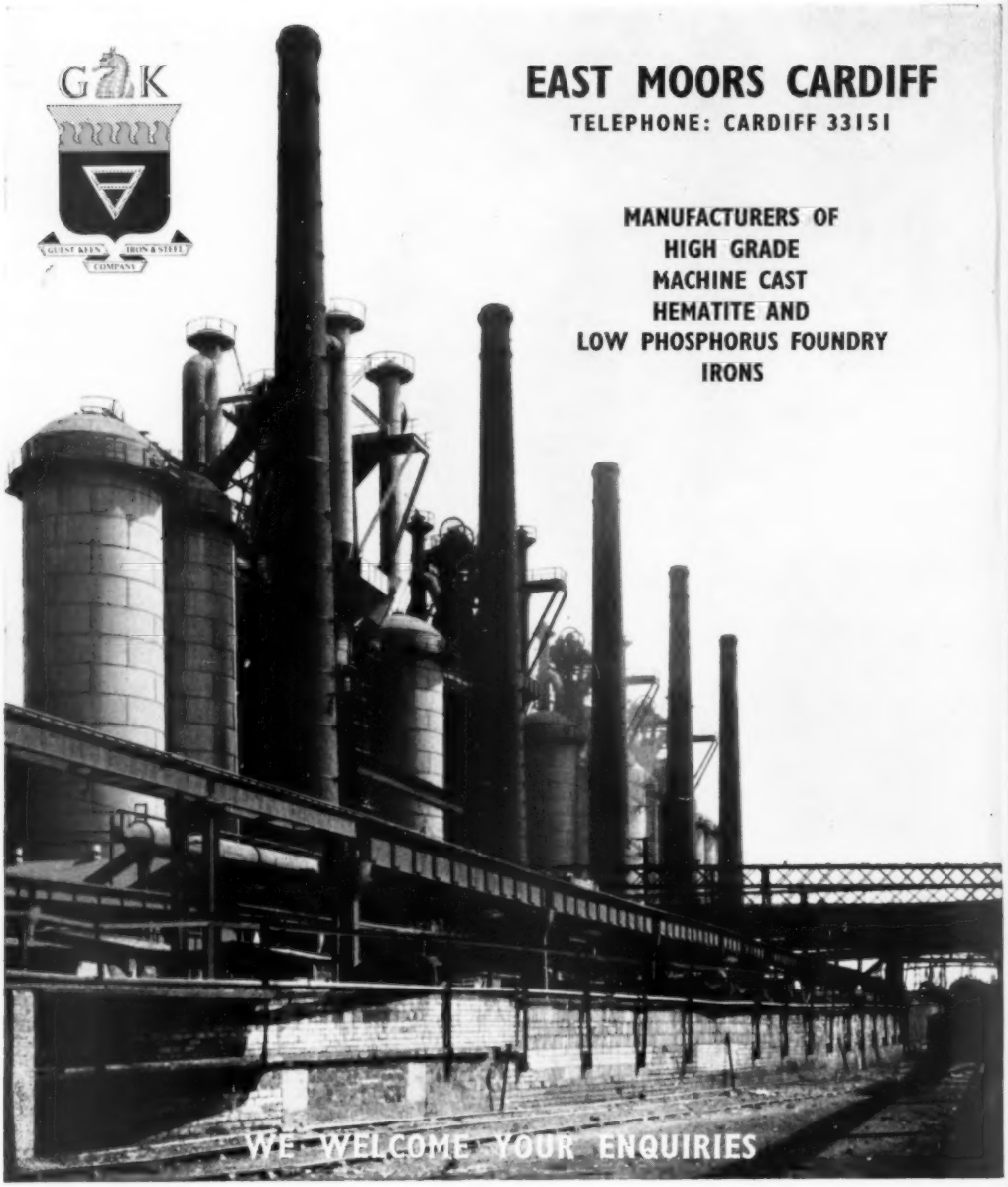
FIVE SPECIALISTS

FOUNDRY SERVICES LTD.

Drayton Manor, Tamworth, Staffs.

Telephone: TAMworth 1000 Grams: KUPRIT Telex: Tamworth

GUEST KEEN IRON & STEEL CO LTD



A FREE METALLURGICAL SERVICE IS AVAILABLE AND YOU ARE INVITED TO CONSULT US ON ANY FOUNDRY PROBLEMS

950

ARE
LEMS

N

f

O
sp
m
su
ar
is
fil

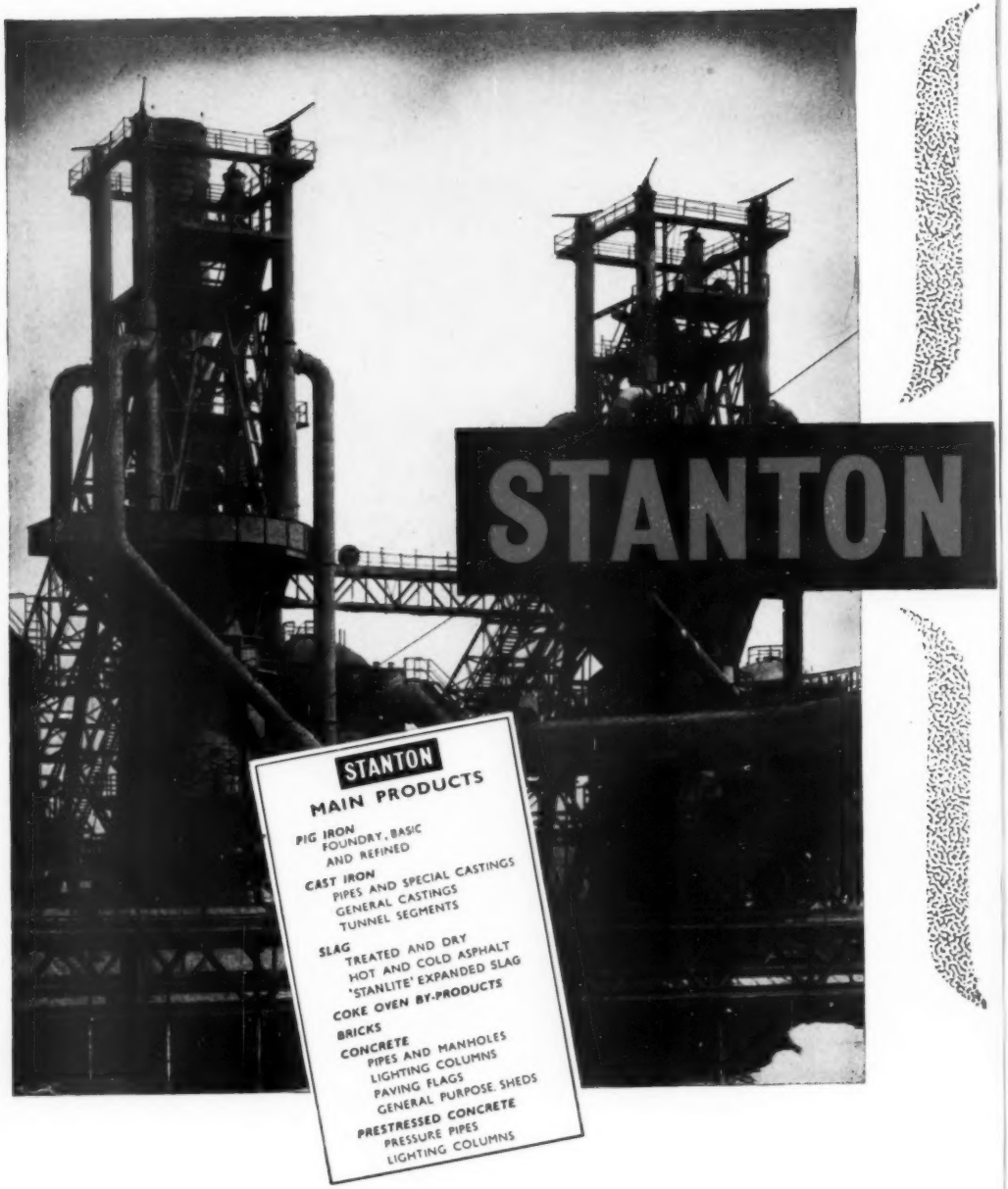
for fine grain and better definition—

Outstanding for its exceptionally fine grain, ILFORD CX is a high-contrast film of medium speed. It can be used with or without lead screens, for industrial radiography up to two million volts, and for gamma radiography. It is ideal for those applications where superior definition is preferred to speed, particularly for the examination of light metal and steel castings, and for the inspection of welds. Recommended developer is Phenisol—based on Phenidone, an Ilford discovery—which gives high effective film speed and promotes contrast, without accentuating grain.

The name PHENIDONE is a registered trade mark

ILFORD *CX* **industrial X-ray film**

ILFORD LIMITED · ILFORD · ESSEX



THE STANTON IRONWORKS COMPANY LIMITED
NEAR NOTTINGHAM

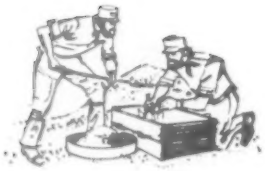
STANTON low phosphorus foundry pig iron

This iron is machine cast and customers special requirements can be met within the limits of analysis shown.

It is particularly suitable for the Automobile Industry and for all High Quality Castings.

ANALYSIS	**Total Carbon**	**3·4% min.**
	Silicon	**2·0–4·5%**
		(in ranges of ·5%)
	Manganese	**0·7–1·1%**
	Sulphur	**0·05% max.**
	Phosphorus	**0·25 % max.**

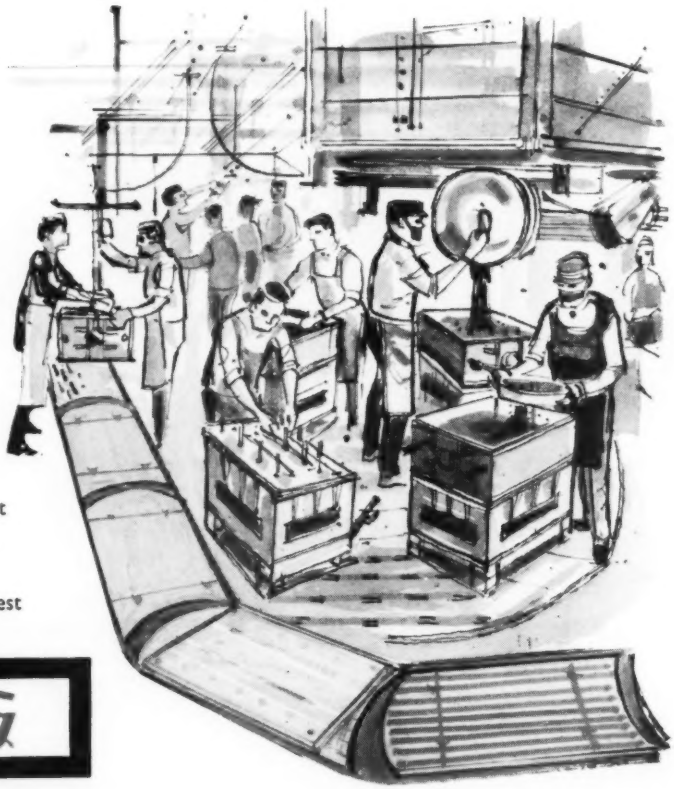
A free and confidential metallurgical service is offered to customers in all aspects of foundry practice and technique.



When boxes were hand-rammed . . . and mostly man-handled from place to place **STERLING LED** . . . with boxes which were strong but light and easy to handle.

When moulding machines came into common use **STERLING LED** . . . with the type of box best suited to the needs of the machine.

In an age of mechanical handling when more and more foundries are turning over to full mechanisation **STERLING LEAD** with boxes designed to withstand the terrific stresses imposed by present day practice. Sterling boxes can be made to any degree of strength required and of course do not crack or break like cast-iron. Also Sterling boxes can be machined to fine limits on the outside for working against stops or other mechanical locating devices.
Where the going is toughest **STERLING LEAD !**



Sterling

STERLING FOUNDRY SPECIALTIES LTD.,
LONDON ROAD, BEDFORD, ENGLAND.

London Office : Iddesleigh House, Caxton Street, S.W.1.

FOUNDRY TRADE JOURNAL

Vol. 109 November 17, 1960 No. 2293

Established 1902

Incorporating

IRON & STEEL TRADES JOURNAL

Published each Thursday

Annual subscription: *United Kingdom 52s.*
Abroad 60s. *Payable in advance*

Editorial Director:
V. C. FAULKNER, F.R.S.A., HON.M.I.B.F.

Editor:
A. R. PARKES, M.I.B.F.

Commercial Editor:
R. M. HOWSE

Production Manager:
R. J. LOVELL

Publisher: H. J. DWYER
Circulation Manager: E. T. GRIFFITHS

District Representatives:
G. P. ELLIOTT (Northern Area) 'phone: Altrincham 1334
T. H. SMITH (Scotland) 'phone: Dumbarton 1046
D. C. RYALL (Southern Area) 'phone: TRAfalgar 6171

The FOUNDRY TRADE JOURNAL is the official organ of the British Steel Founders' Association; Association of Bronze & Brass Founders; the Light Metal Founders Association; Foundry Trades' Equipment & Supplies Association and the National Society of Master Patternmakers.

AN INDUSTRIAL NEWSPAPERS PUBLICATION

Published by

INDUSTRIAL NEWSPAPERS (FUEL & METALLURGICAL) LTD.

Directors:
F. BARRINGTON HOOPER, B.A., *Managing*
F. H. HARLEY
JOHN HOOPER
V. C. FAULKNER
E. G. WESTON, *Secretary*

JOHN ADAM HOUSE, 17-19, JOHN ADAM STREET, ADELPHI, LONDON, W.C.2

Telephone: Trafalgar 6171 (Private Branch Exchange)
Telegraphic Address: "Zacatecas, Rand, London."

PRINCIPAL CONTENTS

PAGE

Sulzer's New Foundry

Detailed account of one of the largest and most up-to-date foundries in Switzerland. The plant was amongst those visited by parties attending the International Foundry Congress at Zürich 629

BCIRA Annual Meeting

Account of the annual general meeting held on November 1 639

La nouvelle fonderie Sulzer. Compte-rendu détaillé sur l'une des plus larges et des plus modernes fonderies de Suisse qui a été visitée par les groupes présents au Congrès International de Fonderie à Zürich. 629

British Cast Iron Research Association. Compte-rendu sur la réunion générale annuelle de l'Association britannique de recherches sur la fonte, qui s'est tenue le 1er novembre. 639

Die neue Giesserei der Firma Sulzer. Ein eingehender Bericht über eine der grössten und modernsten Giessereien der Schweiz, welche von Teilnehmern am Internationalen Giessereikongress in Zürich besucht wurde. 629

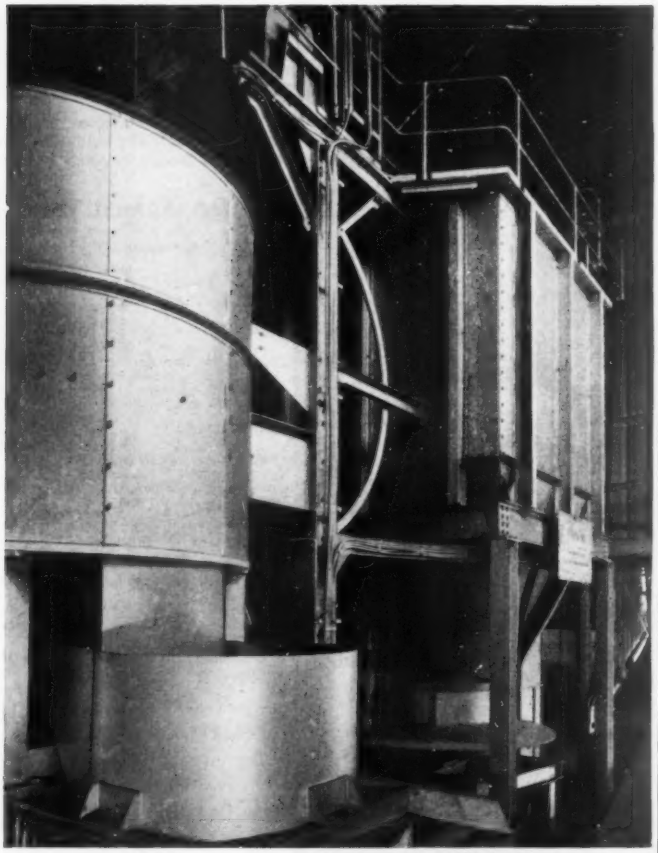
British Cast Iron Research Association. Bericht über die am 1. November abgehaltene Jahresversammlung des englischen Giessereiforschungsinstitutes. 639

Features, News, Commercial Information and Statistics

Leader: Ironfoundry Research and the Future 627
International Foundry Congress, 1961 628
Light Metal Founder's Association 628
Dinner: Foundry Technical Group 628
IBF "Atlas of Defects"—New Edition 628
European Foundry Apprentice Competition 628
Notes from the Branches 642
JIC Banquet 644
News in Brief 646
ABBF Notes 650
TI's New Steel Project 650
Metal Industries in Australia 650
Die-casters Visit USA 650
Personal 652
Raw Material Markets 654
Forthcoming Events 654
Current Prices of Iron, Steel and Non-ferrous Metals 656

Highest efficiency in a FOUNDRY for BATH MAKING

Photograph published by courtesy of BRITISH BATH CO. LTD., Greenford.



Photograph shows :

Large storage hopper with rotary table feeding new sand to a bucket loader, which in turn, charges a 3F size Mix-Muller—batch capacity 4,000 lbs.

Sole Licensees and Manufacturers for the British Empire (excluding Canada, Australia and New Zealand) of the Simpson Sand Mixer.

HALIFAX · ENGLAND

Telephone : Halifax 61245/6/7/8 Telegrams : August, Halifax

August's LIMITED

FOUNDRY
TRADE JOURNAL

Vol. 109 November 17, 1960 No. 2293

Ironfoundry Research and the Future

Elsewhere in this issue an account is given of the proceedings of the annual general meeting of the British Cast Iron Research Association, when the annual report* and accounts for the year up to June 30 were approved. An examination of this report is convincing evidence that every important aspect of the technical requirements of manufacturers of grey and malleable iron is being investigated and reported upon. The progress being made is substantial and the benefit reaped by industry is incalculable. In fact, balance sheets issued by numerous foundry member-firms reflect in a large measure the intelligent application of research results which go into the making of cast products. Yet, if the foundry industry is to expand, so too must its research facilities, for although the BCIRA and other research associations maintain extensive experimental programmes covering all aspects of founding technology, scale, involving far greater expenditure than has hitherto been recognized as necessary.

The accounts of the BCIRA show that last year expenditure was covered by income and, at June 30, 1960, the net current assets amounted to about £180,000. Nevertheless, this superficially satisfactory position has only been achieved by careful economies and it is clear that the services and work could be considerably and usefully extended if long-term financial anxieties could be eliminated. The Association is supported partly by Government grant, through the Department of Scientific and Industrial Research, and partly by industrial contributions; it follows that the actual financial situation cannot be predicted from year to year; on this account, the Association is unable to plan activities as it would like to, in accordance with the recognized needs of the industry. Although the long-standing pig-iron levy fund is an important factor in the industrial finance of the Association, this obviously may vary with the state of trade and technological development within the industry. Thus, wisely, the Council of the BCIRA decided a year or so ago not to rely entirely on the levy to provide the full industrial income—which is the " base line " for securing the important Government grant—but to obtain increased finance by annual subscriptions direct from the industry and its suppliers through the medium of a special membership grade. Yet even with added revenue from this source, it is disconcerting to find that in spite of the extremely attractive DSIR-grant terms and the generally healthy state of the ironfounding industry, last year the total industrial income fell short of the amount required to earn the full grant by £11,500, which meant that £8,625 of grant money could not be claimed. For the current year, enquiry reveals that the prospects are still uncertain, and that the total income may only amount to £228,000, due to a probable reduction in the amount of the grant from the pig-iron levy fund.

At the moment, only 350 iron foundries out of 1,503 in the country are special-grade members of BCIRA, able to avail themselves of the full facilities offered and to make use of the Association's confidential advisory services, involving both experimental work and visits by the highly-trained staff. It is essential that if the ironfoundry industry is to progress in the future, the Association needs many, many more special members from among the medium and smaller concerns and it is just this class of firm which could benefit most from the practical help that can be given. The Editor suggests that executives of such firms should visit the Alvechurch headquarters without delay personally to investigate just how they can make full use of the extra service which is offered.

* Published in the JOURNAL, November 3, p. 559.

International Foundry Congress

The twenty-eighth International Foundry Congress is to be held in Vienna from Sunday, June 18, to Saturday, June 24, 1961. The meetings are to be held in the Imperial Castle (in the old town), the former residence of the Emperors of Austria. The organization is being undertaken by the *Verein Osterreichischer Geissereifachleute* (the Austrian Foundryman's Technical Association). The general Congress theme—loosely interpreted—is: "Transition from Rule-of-thumb to Science and Technology."

The pattern of the programme is expected to be as follows. The Sunday will be devoted to registration and collection of documents; on Monday morning, there will be the Congress opening ceremony, and the afternoon will be taken up by technical sessions and a sightseeing trip round Vienna. On the same evening there is to be a visit to a cabaret show. The next day (Tuesday) will be devoted entirely to committee work and technical matters, while Wednesday will be taken up with works visits, as will Thursday morning also. On Thursday afternoon there will be more technical sessions. Friday will be given over to organized tours of places of artistic and historic interest, except in the evening when delegates will attend the Congress banquet. There is also to be a dinner on the Wednesday for official delegates to the Congress. The Congress closing ceremony will take place on the Saturday, but for those interested in seeing more of the country, two post-Congress tours have been planned, each lasting a week.

The time of the Congress is that of the Vienna Summer Festival, when the city is in a gay mood. As usual, a special programme has been arranged for the ladies and the event as a whole has been organized to allow the participants to enjoy, in addition to the usual social events, the beauties of Vienna city and its surroundings. Visits to the Vienna State Opera and other theatres are also envisaged.

Selection of hotel accommodation, as well as arrangements for the supplementary programme and the post-Congress trips will be carried through by a selected travel bureau. UK founders who intend to participate or wish to have further detailed information in due course should register with Mr. G. Lambert, secretary of the Institute of British Foundrymen, 14, Pall Mall, London, S.W.1. Overseas readers requiring to register for the Congress should get in touch with their local technical foundry association which holds membership of the International Committee of Foundry Technical Associations, under whose auspices the event is conducted.

Light Metal Founders' Association

At a meeting of the technical committee of the Light Metal Founders' Association held on November 3, which was attended also by members of the Association's executive committee, a presentation was made to Mr. A. P. Fenn who, due to health reasons, has retired after 45 years in light-metal founding.

Mr. Fenn who held the position of technical engineer at the Birmingham Aluminium Casting (1903) Company, Limited, was one of the original members of the LMFA technical committee and has served the Association in that capacity for 21 years.

He has been regarded as one of the foremost authorities on light-metal foundry alloys and his outstanding work on behalf of the industry included service on many British Standard, research and other committees.

Dinner

FOUNDRY TECHNICAL GROUP

At the end of last month, a record number of 80 participated in the annual dinner of the Foundry Technical Group, comprising staff and past students of the National Foundry College, Wolverhampton, and its predecessor, the British Foundry School. The function was held at the Star & Garter Hotel; Dr. J. G. Pearce, C.B.E., vice-chairman of the governors, presided, and at the end of the meal, proposed the Loyal Toast. Mr. J. Bamford, B.SC., principal of the College, proposed the toast of "The Guests," mentioning the presence of Mr. G. W. R. Lines, B.A., M.ED., director of education for Wolverhampton (and honorary clerk to the governors of the College), and Mr. A. R. Parkes, Editor, FOUNDRY TRADE JOURNAL. Mr. Lines replied for the guests and then Mr. Parkes proposed the final toast of the evening, that to the Foundry Technical Group. To this, Mr. J. B. McIntyre, secretary of the Group and senior lecturer of the College, replied. The rest of the proceedings were completely informal.

The afternoon of the same day had been occupied with the annual meeting of the Foundry Technical Group, at the conclusion of which members, as is the custom, received a lecture on a subject quite removed from foundry practice. In this case, the talk was on "Wines," given by a local expert.

During the proceedings, the announcement was made of the establishment of The Founders Guild—a group of National Foundry College Diploma-holders formed to promote closer personal and technical co-operation.

IBF "Atlas of Defects"—New Edition

It is expected that by the end of the present year it will be possible to go to Press with a new edition of the "Atlas of Defects in Castings," published by the Institute of British Foundrymen. The edition will be greatly enlarged and will contain new material, including an almost completely revised section dealing with steel and a new section on investment casting, covering defects in most types of product.

Unfortunately, it has not yet proved possible to obtain suitable illustrations of defects in shell-moulded castings, and this will be a gap in what it was hoped would be a comprehensive work. The publishers state that it would be possible to include a shell-moulded section in the new edition if suitable material became available during the next few weeks and through its Technical Council, the body responsible for the publication, the Institute, has addressed an appeal to members who have suitable photographs to forward these, with appropriate information, to the secretary (14, Pall Mall, London, S.W.1) as soon as possible.

European Foundry Apprentice Competition

Following a meeting of the European Committee of Foundry Associations in Vienna, it is announced that recommendations of the sub-committee responsible for the arrangement of the 1961 European Foundry Apprentice Competition have been accepted. The event, the fourth of its type, will be staged in Düsseldorf, Germany, during the week May 15 to 22. Previous competitions have been held in Great Britain 1960, France 1958 and Stuttgart (Germany) in 1957.

Arrangements are being made by the United Kingdom's Competition Committee for a national competition for choosing this country's apprentice team for sending to Düsseldorf. The date of this "elimination round" is expected to be fairly early next spring.

INTERNATIONALER GIESSEREI-KONGRESS
INTERNATIONAL FOUNDRY CONGRESS
CONGRES INTERNATIONAL DE FONDERIE

Sulzer's New Foundry

Plant and Equipment inspected by Parties attending the Zürich International Foundry Congress

Apart from their original premises at Winterthur, Switzerland, Sulzer Brothers have, since 1907, maintained a second works at Oberwinterthur, where ideal conditions for building and the supply of power are available. These premises have been built up gradually in recent years in order to relieve congestion in the old works, the latest major extension having been the erection of a comprehensive foundry plant* and of a building for heavy engineering work. The former was among the works visited during the International Foundry Congress and is described in considerable detail in the account which follows:

Covering nearly 350,000 sq. ft., the new foundry (Figs. 1-3) of Sulzer Brothers at Oberwinterthur, comprises six bays running north and south and measuring 79 ft. across and 558 ft. long. To the north of these, there are three transverse bays (one of 79 ft., and two of 39 ft.) running east and west, and provision has been made for future extension.

To the south of the foundry, the yard serves mainly for the storage and preparation of raw materials. Railway sidings run into it, while its main features are two partially-covered crane runways with overhead-travelling cranes of 10-tons lifting capacity. The charging crane for the cupola furnaces is freely suspended at the centre, whilst its outer end runs on a circular track, the various raw materials being taken from sector-shaped containers around the track and placed on the weighing machine at the centre. Apart from the crane installation, there is also a large storage-space for coke, which is supplied by conveyor belts from a wagon tipper, an oil tank of over one-million gallons capacity and open-air storage areas for moulding boxes, scrap, etc.

Castings and Standardization

Because of the wide diversity of the Sulzer products, the castings produced at the new foundry weigh anything from 20 lb. to 120 tons and include grey iron and steel castings for the entire Sulzer production programme as well as the requirements of foundry customers. The company must be able to supply castings to all current specifications for alloyed and unalloyed, heat-resistant, non-scaling, corrosion-resistant and wear-resistant materials.

Before work could be started on the project, it was imperative to standardize patternplates and moulding boxes, and, as a result, the stock of moulding boxes now comprises only a very limited number of types. Small and medium-size boxes are in one piece as before, whilst the larger boxes are bolted together from separate head-pieces and side walls, according to the dimensions required. The smallest box used measures about 22 by 17 in., and the largest 22 by 17 ft. The increased use of patternplates, which are adapted to the standardized boxes, constituted a further important advance.

Layout

The various moulding shops are situated in the longitudinal bays (Fig. 3), that for steel castings is located in No. 2 bay, whilst the heavy moulding shop for grey-iron and steel castings is in No. 3 bay. Medium-size moulds, together with light and greensand moulds for grey iron, are produced in bays Nos. 4 to 6. The coreshop runs at right angles to the moulding shops, with the two further bays adjoining it housing the patternmaking shops. The melting shops for steel and grey cast iron are situated in bays 2 and 5. The fettling shops are located in the same bays as their moulding shops, except for steel castings, which are rough fettled and finished in No. 1 bay. The departments for heat-treating, rough machining and inspection are also situated in this bay.

At the front end of the longitudinal bays, there are altogether three despatch sections for the individual foundries each with direct rail connections. Bays Nos. 2 and 5 are extended into the partly-covered yard, where are situated the crane runways and the raw-material stockpiles.

Among the noteworthy innovations at the new Sulzer foundry may be mentioned the installation of Sandslingers, sand-preparation and reclamation plant, the new sand-drying plant, the mould-surface-drying technique, turnover and pattern-draw machines and the shake-outs.

* The planning work of this new foundry, down to the layout and the production equipment, was carried out in co-operation with the American consultants, Lester B. Knight and Associates, Inc., of Chicago.

FIG. 1.—*Aerial view of the Oberwinterthur works of Sulzer Bros. Key:* (1) *New foundry building;* (2) *foundry office building;* (3) *crane runways;* (4) *oil storage;* (5) *transformer and distribution station;* (6) *new heavy machine-shop;* (7) *underground pipe-duct;* (8) *boiler house and compressed-air supply;* (9) *water-purification plant, and* (10) *welfare building.*

Sand Plant

In the new foundry, five Sandslingers (Fig. 4) have been installed capable of handling 3½ million cu. ft. of sand annually, together with necessary sand-preparation equipment. In each of the Sandslingers, the sand brought up by the feed system is led *via* conveyor belts carried on two movable linker arms to the slinger head. Here a motor-driven wheel delivers about 0.35 cu. ft. of sand into the mould per sec. at a velocity of about 160 ft. per sec. Strickling of the excess sand from such moulds is carried out after sandslinging on two mechanized moulding lines by an automatic sand-cutting machine.

Sited at the rear end of the building between the moulding and coreshops, the sand-preparation plant measures over 72 ft. in height and handles up to 190 tons of sand per hour. About 160,000 tons of moulding sand and 12,000 tons of coresand are prepared annually.

The plant for moulding-sand preparation is sub-divided into several sections: sand for dry-sand moulds and for greensand moulds in the steel foundry (Fig. 5); coresand; sand for dry-sand moulding in the grey-iron foundry; and that for greensand casting in the grey-iron foundry. The system is supplemented by a new sand-drying plant and a silica-sand reclamation plant which can handle up to 10 tons of sand per hour. Efficient dust-collection and the enclosure of most of the handling equipment ensure dust-free operation of the sand-preparation plant.

Clay-bonded Sand

In the sand-preparation plants for steel and grey-iron castings, synthetic or semi-synthetic clay-bonded moulding sands are made up, according to requirements. Used sand, detached from the box and casting at the shakeout, drops through a hopper on to a shaker conveyor, above which the first magnetic separator is fitted to remove any fragments of iron. From thence the sand is passed on to underground return conveyor belts running parallel with the moulding lines. The completely-enclosed design of these conveyors ensures intensive exhaustion of all undesirable dust. After receiving any strickled sand spillage below the moulding stations, the used sand passes through a cooling drum-type centrifuge, in which particles of iron are tailed off for the second time, and from there into a bucket conveyor which raises it to the silos of the preparation unit. Here, after a third removal of any tramp iron, it is discharged into the used-sand bunker through a shaker screen.

New sand, either with a natural clay content or free of clay, according to application, comes from a central drying plant and passes, dry and cooled, *via* a conveyor belt serving all units into the new-sand bunkers. Eventually, it is intended to convey the powdered binders and other sand additives to the appropriate silos by pneumatic means, so that the advantages of modern container transport can be utilized to the full.

In the actual mixing process, the various ingredients are supplied to high-duty Speedmullors by self-propelled trucks or bucket-wheel feeders, and are milled into the finished sand mixture with the addition of water under automatic control. The blending and kneading effects in the mixer are produced by horizontal wheels, while rapid rotation of the lifting blades causes the sand to mount up the walls, the rotational speed being about 25 ft. per sec.

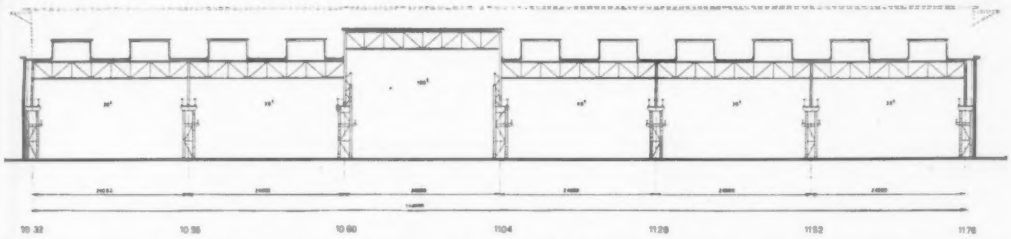


FIG. 2.—*Cross-sectional elevation sketch through the foundry bays at the Oberwinterthur works, showing the roof construction.*

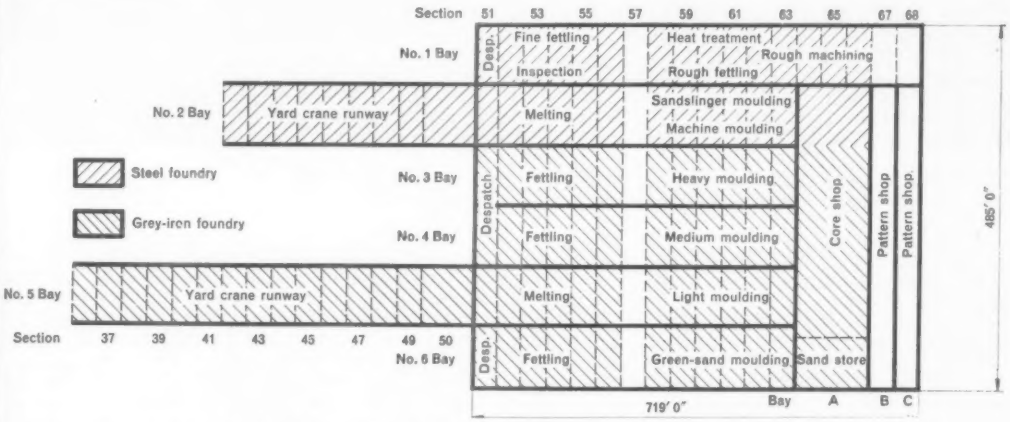


FIG. 3.—*Plan sketch showing the sectional allocation of space for various types of foundrywork.*

The prepared sand mixtures are then delivered to the stock bunkers of the moulding stations *via* further bucket conveyors and belts, passing on the way through drum centrifuges, according to their intended application. These sand-preparation processes are under fully automatic control from a central electronic station, and can be followed on a luminous diagram by means of visual signals.

Hygrotester

The addition of the necessary water to the sand is controlled by a Hygrotester system which measures the moisture content of the old sand and allows for any temperature fluctuations. In the next phase, the control element of this unit automatically allocates the amount of water necessary to ensure the pre-selected moisture content for the prepared sand. Sands prepared in this manner can be supplied to the moulding shops with a moisture tolerance of ± 0.2 per cent., it is claimed. A powerful cooling unit is combined with the Speedmullor mixers, according to the application of the finished sand.

Coresands

All the coresand mixtures required in the new foundry are blended in an appropriate preparation plant situated between the two plants for moulding sands. The ingredients needed for these mixtures are either brought up by the belt conveyor serving all the plants, or, in the case of powdered materials, are charged pneumatically into the bunkers above the mixing platform. Liquid ingredients will later be delivered from stock tanks straight into the mixers by high-pressure pumps. On the mixing platform, a loam-mixing machine and two or three smaller mixers for easily mixable coresands are installed, in addition to two Simpson mixers. The ingredients are supplied to the mixers *via* scales, fed by vibrators which operate at a variable delivery-rate according to requirements. Any water needed is supplied through flow meters and thus checked. The finished coresand mixtures are then transported to the nearby coreshops.

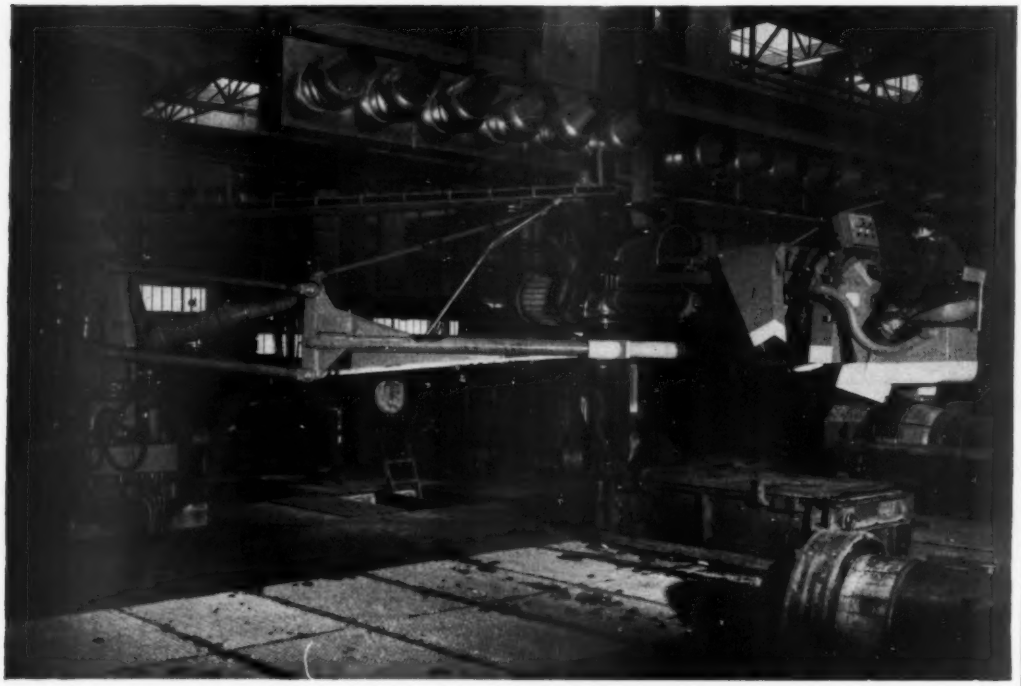


FIG. 4.—*Stationary Sandslinger as used in the "medium" moulding shop. It is of the type in which the operator moves with the machine head over the moulding box.*

Grain-size Control

In order to overcome the problem of grain-structure variations in the sand as delivered, a Rheax elutriator has been installed at the Oberwinterthur plant. This equipment, which has only very recently been introduced into the foundry industry, is said to enable any grade of sand to be produced and actual deliveries can be regraded according to the foundryman's requirements. One of the significant economic advantages of this plant is that it can be used to recondition used sand from the foundry. Up to 10 tons of used sand per hour can be processed, with the following yields: 5 per cent. over 0.051 in. (for use as backing sand); 50 per cent. coarse foundry sand from 0.013 to 0.053 in.; 35 per cent. fine foundry sand from 0.004 to 0.014 in.; and 10 per cent. waste dust from 0 to 0.004 in.). The plant at the Sulzer works has been perfected by the addition of a special grain-cleansing unit and a grading unit with a Phalanx elutriator.

Sand and Mould Drying

Apart from various units for loosening and breaking up lumps, the new sand-drying plant consists of a drying drum with oil firing and a cooling drum with air cooling, both on the counterflow principle. Special precautions are taken to prevent mixing when sand grades are changed. Here, too, an automatic instrument registers the humidity of the dried moulding sand. The new-sand bunkers of the drying plant will hold a quantity sufficient for at least one winter, so as to ensure the interdependence of the plant in the event of supply difficulties.

Experience has shown that only a very limited drying depth of the moulds is required in order to produce sound castings. This depth varies according to the nature and size of the casting between nil for greensand moulds and 6 in. or more for very large castings. A finely differentiated surface mould-drying process has therefore been developed with the object of reducing costs and enabling cheaper castings to be produced in the medium and small categories. This drying is done in special intermittently-operating ovens of various dimensions, in which top and bottom half-moulds receive hot air emitted at high speed from nozzles fitted in the roof, a time schedule ensuring that the desired depth of drying is obtained. The moulding sands are adapted to the system but the operation of the process still calls for considerable experience, first-class sand preparation being fundamental to the method.

Moulding and Shakeout

Claimed to be one of the most powerful machines of its type ever employed in a foundry

to date, the largest turnover machine at Oberwinterthur will take a box weighing up to 22 tons. Apart from this large unit, there are also three small turn-over machines, each of 12-tons capacity. To allow the turn-over machines to be utilized efficiently, the finishing processes on moulds are divided up and allocated to different moulders, while the moulds are carried on roller conveyors or turntables.

Rapid and labour-saving shakeouts have been provided for all the moulding shops in the new Oberwinterthur foundry. The largest is in four sections and will take boxes weighing up to 80 tons or measuring up to approximately 24 by 19 ft. and is one of the biggest ever produced. In addition there are three smaller shakeouts of 20-tons capacity each.

Shake-outs are mounted on springs and operated by rotating eccentric weights driven by electric motors. The vertical lift is said to be up to 3 or 4 in. and the machine performs about 1,000 strokes per minute. Special features of this installation are dust-extraction hoods and separators, the medium-size shake-outs being provided with simple exhaust hoods, in the top of which a horizontal curtain of high-pressure water arrests dust.

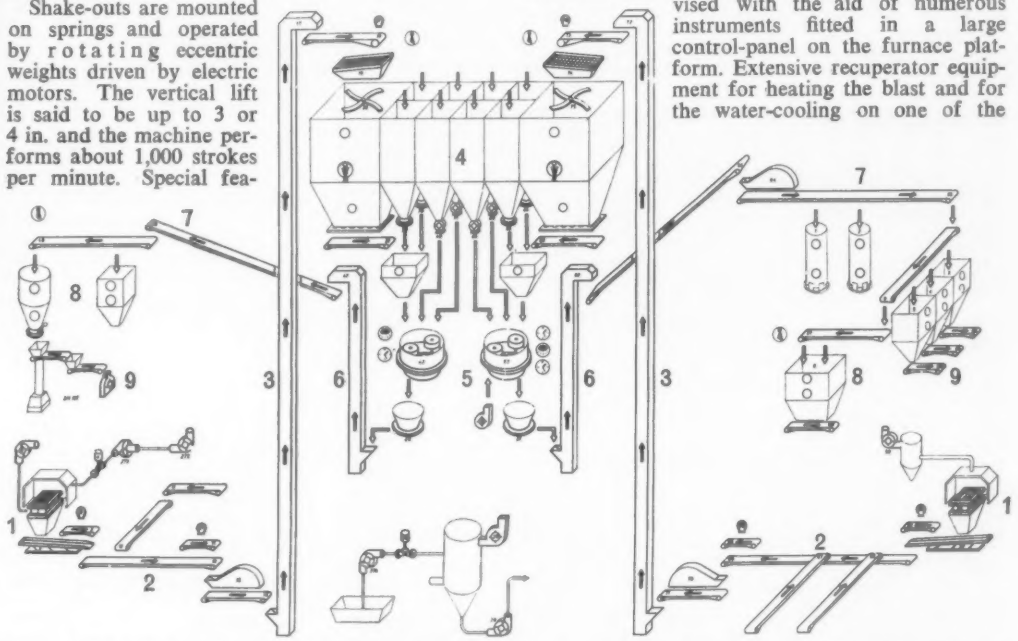


FIG. 5.—*Exploded sketch of dual-purpose sand-preparation plant for the steel foundry. Key:* (1) *Shakeout;* (2) *used-sand return conveyor;* (3) *bucket elevator for used sand;* (4) *sand and binder silos;* (5) *sand mixers;* (6) *bucket elevator for prepared sand;* (7) *conveyor belts;* (8) *intermediate silos, and* (9) *moulding station.*

WORKING SYSTEMS

How these innovations described earlier have been incorporated in the plant itself is shown in the following account of the more-important sections of the new Oberwinterthur foundry.

Cupolas

The cupola installation (Figs. 6 and 7) in the Sulzer grey-iron melting plant comprises a water-cooled hot-blast cupola with a neutral lining (and which can thus be used either for the acid or the basic process) and an uncooled hot-blast cupola which is only intended for the acid process. Both have a blast-furnace profile, *i.e.*, a conical furnace shaft with a cylindrical lower part, the hearth. The hearth of both cupolas has a diameter of 43½ in.

In both units, six tuyeres are arranged in the annular hot-blast belt. Both cupolas are over 76 ft. in height, and each of them has a melting output of 12 tons per hour. A common receiver with a capacity of 10 tons of metal is located in front of the furnaces. The plant is regulated and supervised with the aid of numerous instruments fitted in a large control-panel on the furnace platform. Extensive recuperator equipment for heating the blast and for the water-cooling on one of the furnaces is intended for use when operating special metallurgical processes.

The blast-heating system works on the counter-flow principle, the waste gases from the burning coke being led out of the furnace shaft, burned in a combustion chamber and passed through a recuperator in which their heat is given up to the stream of cold air flowing in the opposite direction. Blast temperatures of up to 590 deg. C. are obtained in this way. The hot blast enables molten iron temperatures of over 1,462 deg. C. to be obtained

along with a smaller coke-charge percentage than hitherto.

Constituting a considerable development over the acid cupola furnace, the water-cooled unit has a water-cooled shaft with a neutral lining in the hearth which allows basic slags to be handled, *i.e.*, slags in which the proportion of limestone is higher than the proportion of silica. With slags of this kind, more-extensive metallurgical reactions can be achieved in the cupola, permitting the use of a high proportion of scrap in the charge and thereby reducing the production costs of the molten iron. These techniques are, however, still in the course of development at Sulzer's, and the control of furnaces of this type with difficult melting-schedules calls for further experience and research.

Induction Furnaces

For reasons of economy, it was decided to supplement the cupola installation in the new foundry with a battery of medium-frequency induction furnaces instead of the arc-melting furnaces used hitherto. This installation is placed next to the cupolas and in the same bay. The plant comprises a crucible-type furnace with a capacity of 10 tons, two others of 5-tons each and one 2-ton furnace. All the furnaces operate with electrical power at a frequency of 600 cycles per second. The coils of the 10-ton and the two 5-ton furnaces are divided into three sections, and that of the 2-ton furnace into two, each coil section having a connected load of 800 kw. It is believed that this is the first time that this principle has been employed in a large medium-frequency induction furnace installation. The division of the furnace coils into sections enables single sections to be switched on or off, or their loads varied, in accordance with melting requirements, such as the level of the metal in the crucible.

The installation also includes four converter units, each consisting of a medium-frequency converter and a converter exciter. The entire melting plant can be supervised from a large control-panel. Space is available for a 15-ton melting furnace to be added as a later extension.

Fumes produced during melting are exhausted through slits in the upper part of the crucible. This battery of medium-frequency induction furnaces constitutes, it is believed, one of the largest furnace installations yet built of this type. They are called upon to carry out a wide variety of duties in the Oberwinterthur foundry, and represent a substantial increase in molten metal capacity, which is of particular importance when large castings weighing up to 120 tons have to be poured.

In certain cases it is necessary to duplex the cupola iron for reasons of enhancing its quality, *i.e.*, to subject it to treatment in the induction furnace, either for adjusting the composition, for additional alloying or for attaining definite temperatures. The furnaces also produce various grades of grey cast iron, especially alloyed qualities, from solid charges; nodular cast iron is also melted in these furnaces.

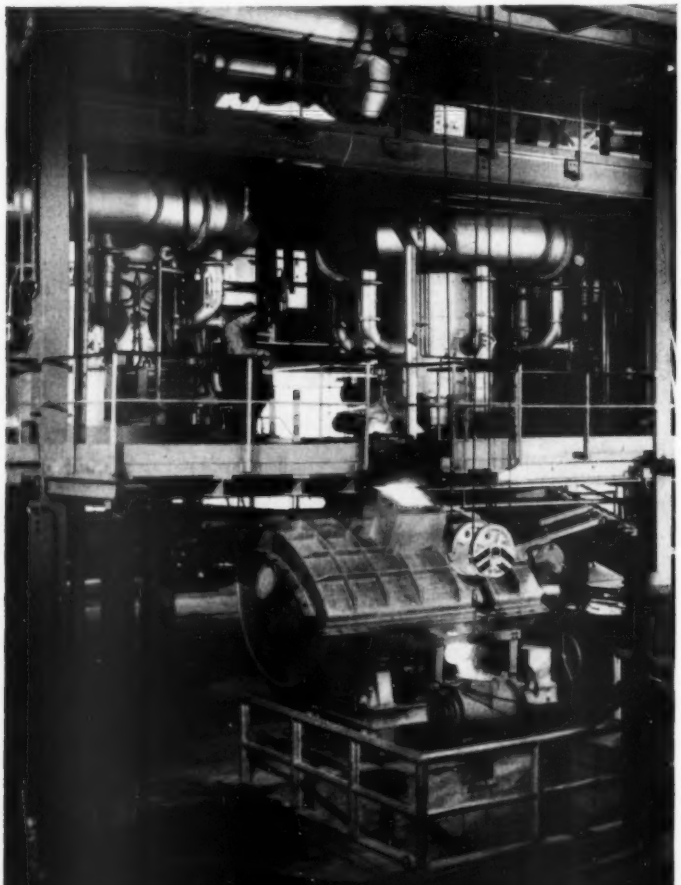


FIG. 6.—*Sulzer cupola installation at Oberwinterthur from the front, showing also the receiver serving two furnaces.*

A 5-ton and a 2-ton crucible furnace are available to the Bühler roll foundry for casting rolls, Sulzer Brothers and the Swiss firm of Bühler Brothers, Uzwil, having reached an agreement in 1955 providing for the amalgamation of their iron foundries in the interests of more-efficient production and increased output.

Steel Melting

Three electric-arc furnaces of up-to-date design are installed in the melting shop of the Sulzer steel foundry, their capacities being 3, 6 and 14 tons, while space is available for a further 14-ton furnace. The three units are rated at 3,000, 4,500 and 4,500 kva. Hand charging of the furnaces has been replaced by the more-economical skip-charging method. The high electrical rating of the furnaces ensures speedy melt-down of the charges and thereby reduces melting costs. Each furnace has its individual smoke-exhaust hood which virtually prevents any escape of fumes, so that even when oxygen refining is done—an operation which used to cause severe smoke nuisance in the old foundry—no fumes of any kind are allowed to escape into the melting shop or to the atmosphere.

In this shop, the electric-arc furnaces are supplemented by two medium-frequency induction furnaces from the old foundry, with capacities of 10 cwt. and 1 ton, which are used chiefly for the production of alloy steels for castings. Space is also provided for a further 1-ton furnace.

Moulding Operations

For producing moulds for medium-weight steel castings, the Sandslinger moulding shop is laid out so that both drysand and greensand moulds can be produced. The moulding sand is rammed up in the boxes by a stationary Sandslinger, which is supplied with sand straight from the preparation plant. After being rammed, the boxes are turned over and the patterns removed in a turn-over machine having a lifting capacity of 12 tons. For drying the moulds, four ovens are available, these being designed for surface drying in batch operation. After the cores have been set in the moulds and the latter have been placed on the casting floor, pouring can be carried out. The castings are removed from the sand on a shake-out unit, (Fig. 8), which has a capacity of 20 tons.

As all other moulding shops use Sandslingers only, the only moulding machines in the new foundry are to be found in the mechanized moulding shop for light steel castings. Two jolt/squeeze moulding machines with lifting devices are installed here, together with a shock-free jolter with a

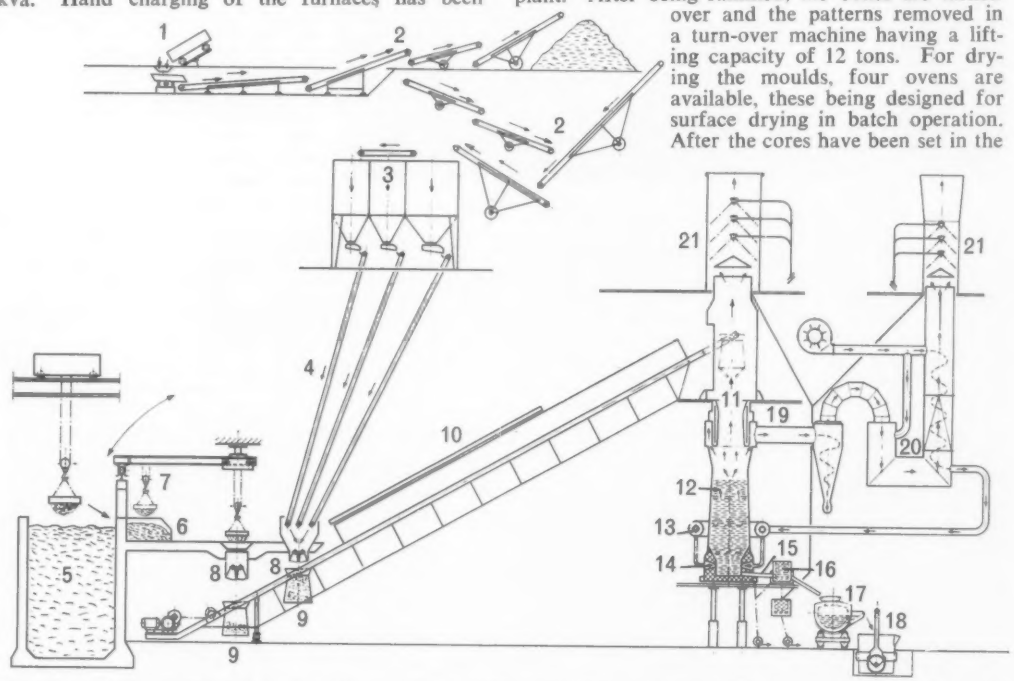


FIG. 7.—*Diagram illustrating cupola operation. Key:* (1) *Wagon tipper;* (2) *conveyor belts;* (3) *coke and limestone silos;* (4) *conveyor belt to charging plant;* (5) *pig-iron and scrap bunker;* (6) *charging platform;* (7) *lifting-magnet crane for charging plant;* (8) *weigh-hopper for charge materials;* (9) *charging skip;* (10) *inclined hoist;* (11) *throat of cupola;* (12) *cupola shaft;* (13) *annular hot-blast belt;* (14) *tuyere;* (15) *iron and slag run-off;* (16) *slag separator;* (17) 10-*tons capacity receiver;* (18) *pouring ladle;* (19) *exhaust pipe for cupola gas;* (20) *blast-heating plant, and* (21) *dust-extraction plant.*

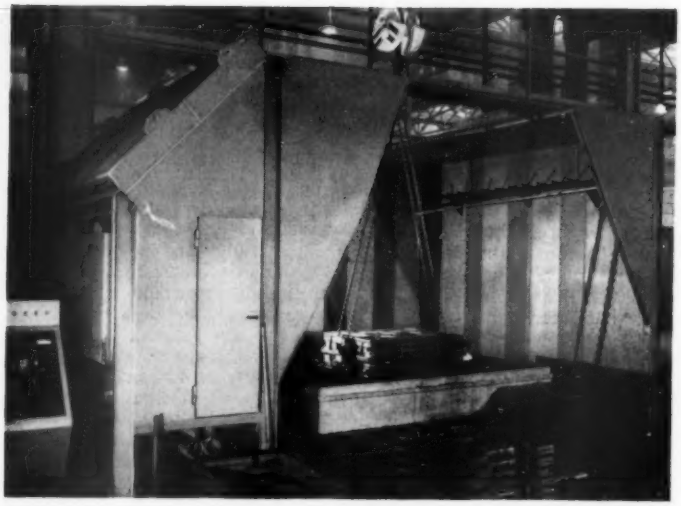


FIG. 8.—*Shakeout of 20-tons capacity; note the provision for partial enclosure and for water spraying.*

post-type lifter. The tables of the moulding machines measure 25½ by 31½ in. and 59½ and 41½ in. respectively. Conveyor belts bring the sand straight from the preparation plant to the machines. After being made ready, moulds are placed on roller conveyors and poured; the castings being subsequently removed from the sand on a shakeout of 1½ tons capacity at the other end of the conveyor. Empty boxes are sent back to the moulding station on a special roller track.

"Heavy" Shop

In the heavy moulding shop, large-size steel and grey-iron castings weighing up to 120 tons are produced. So that all these heavy castings can be poured in robust moulding boxes, three concrete casting pits of various depths are provided, the deepest of them measuring 33 ft. by 24 ft. 6 in. by 18 ft. 9 in. In addition, a special casting pit is available for cylinder-liner production. The moulds are no longer loaded with weights before pouring, but clamped down with transverse members which are laid across the moulds and fixed with sprung bolts at the edge of the pit.

In this section, the only large mobile Sandslinger of the new foundry is employed and travels along the casting pits in the middle of the shop. Its arm has a sweep of 41 ft., so that it can cover every part of the moulding area The machine carries an interchangeable sand bunker, which is filled straight from the sand-preparation plant. Moulds in the heavy section are dried exclusively by portable driers. The largest shakeout, which can handle moulds or castings weighing up to 80 tons, is installed in one of the bays of the heavy moulding shop.

Medium-size Moulds

In the medium moulding shop, moulds are produced by a stationary Sandslinger. A large turnover machine with a lifting capacity of 21½ tons is available to turn the boxes over and draw the patterns. Moulds can be dried either in a conventional drying stove or in two "intermittent" surface-drying ovens, which are situated between the medium and light moulding shops, so that they can serve either of these. In addition, portable dryers are also available. The flasks are emptied either on the large 80-ton shakeout of the heavy foundry or on the shakeout of the light moulding shop.

Light Sections

Intended primarily for castings produced in surface-dried moulds, the light moulding shop provides a higher degree of mechanization than the medium moulding shop. The moulding line here is laid out with roller tracks in the form of a figure nine, the patterns being laid in the moulding boxes at the head of the "9." The boxes then travel round the loop of the "9," receiving sand at one point and being rammed up by a stationary Sandslinger at another. At the end of the loop, the boxes run on to the straight section of the moulding line, where they are turned on a turn-over machine and the patterns are drawn.

Mould drying takes place in eight surface-drying ovens, two of which are of larger capacity than the others and may also be used by the medium moulding shop. A large drying oven, shared with the medium moulding shop, is also available for conventional drying. The boxes are emptied in the same bay on a shakeout of 20-tons capacity.

Greensand Moulding

In the greensand shop, which is engaged more on series production, mechanization has been carried even further than in the light moulding shop. Here, moulds are produced by a fixed-cycle system on a turntable (Fig. 9) which rotates through 90 deg. at each movement. The moulds are produced in four stages: assembly of pattern and moulding box; filling with moulding sand by a filling unit; ramming of the mould; and expulsion of the boxes on to the roller conveyor leading to the turn-over machine.

The boxes pass by way of the turning and lifting machine to the casting lines where they await pouring. After coming from the 20-ton shakeout, empty boxes travel back along a special roller conveyor to the vicinity of the turntable; thence they are placed on the turntable by a hoist.

Coreshop

With its attached plant for coresand preparation, the joint coreshop affords extreme mobility combined with low capital costs for equipment. It comprises a coreshop for steel castings plus shops for heavy, medium and light cores. The individual coreshops are located in the transverse bay in front of the corresponding moulding shops, in order to cut down transport distances to a minimum. The coreshops make use of the most up-to-date equipment, using core-shooters, turning and lifting machines, sand-filling equipment and bench jolters in considerable quantity. Numerous workstations and storage areas are provided for cold-setting cores.

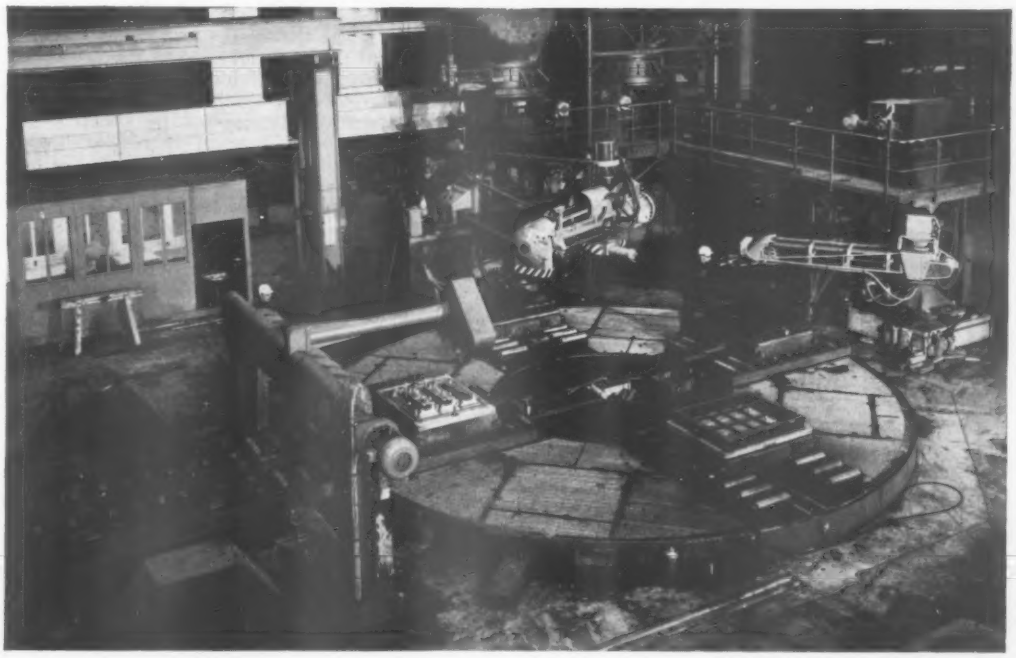
If necessary, cores are dried in oil-fired core-drying ovens of various sizes. These, for the most part, run underneath the sand-preparation plant and from the coreshop into the individual moulding shops. The ovens are thus charged in the coreshops, whilst the dried cores are taken out on the oven trolley in the moulding shops. The whole coreshop is planned on the principle of utilizing short transport distances.

Fettling

All castings are freed of adhering sand by mechanical means, the smaller castings in shot-blast units in which the steel shot is accelerated by compressed air or else by centrifugal slingers. Large castings on the other hand are cleaned with Hydroblast (Fig. 10), *i.e.*, a water jet discharging 63 gall. per min. at a pressure of 2,275 lb. per sq. in. In this plant, the hydraulically-operated jet pipes are controlled from outside the cleaning chambers. The jet of water sweeps the core and moulding sand off the castings, which are at the same time cleaned by the violent movement of the dislodged sand. The installations are as follow:—(1) A wet cleaning chamber for heavy and medium castings with a working area of 49 by 21 ft. which can be divided into two rooms of equal size by means of double folding doors; two-jet units are located in the longitudinal wall. In this chamber the casting is mounted on a mechanically-driven turntable having a diameter of 14 ft. 9 in. and a carrying capacity of 130 tons. (2) There is a cleaning chamber for medium and light castings with a working area of approximately 20 by 20 ft. This is equipped with a one-jet unit and a mechanical turntable with a diameter of 8 ft. 2 in. and a capacity of 25 tons. (3) A Centriblast plant for light and medium castings is equipped with a platform truck and has a capacity of 10 tons.

The sand which is washed away from castings drops with the water through gratings into shaker conveyors, material which cannot be pumped being separated off by screens and strip magnets. The

FIG. 9.—*Turntable, sand filler, Sandslinger, turnover machine and sand cutter in the greensand moulding shop for grey iron.*



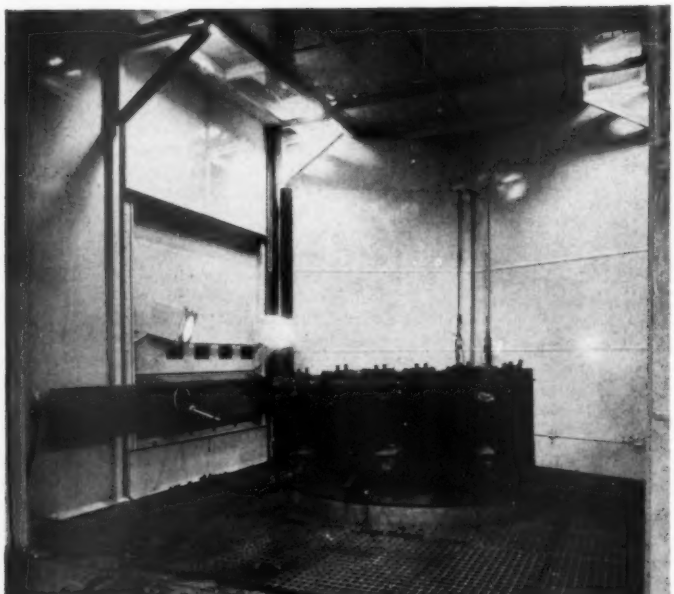


FIG. 10.—*Interior view of the Hydroblast. Used for large castings, this water-jet cleaning chamber is part of the all-mechanical plant used for the cleaning of moulding sand and cores from castings. In this unit, movement of the high-pressure jet is arranged externally.*

mixture of sand and water is then pumped into the silica-sand reclamation plant.

Other Fettling

Heavy and medium castings are ground with electric hand grinders, a voltage of 240 v. being adopted for safety reasons. Apart from the cleaning chambers described earlier, individual box-type fettling compartments of concrete construction are available, which serve also as supporting structures for the lifting gear of the fettling plant. Oxy-acetylene flame-cutting equipment enables runners of all sizes on steel castings to be removed quickly and economically whether of alloyed or unalloyed steel. Similar equipment is also used for the flame scarfing of castings.

Heat-treatment

Three heat-treatment furnaces with elevating mechanisms measuring 15 ft. 5 in. by 8 ft. 10 in. by 4 ft. 11 in. are available; there is a heat-treatment furnace with a bogie-hearth measuring 11 ft. 9 in. by 6 ft. 7 in. by 5 ft. 10 in., and a bogie-hearth furnace measuring 36 ft. 1 in. by 14 ft. 9 in. by 11 ft. 6 in. All these furnaces are oil-fired. The heat-treatment cycles are controlled electronically by a punched-card system in accordance with the directives from the metallurgical laboratory, thereby ensuring that identical grades of castings having uniform properties are turned out, and eliminating the possibility of human error. This furnace control system may be regarded as a fundamental advance in the technique of heat-treatment. (The furnaces can be used for either steel, grey iron or nodular cast iron; oil and water baths are provided for quenching cast steel).

To enable material to be transported with a minimum of congestion, trackless vehicles are provided for carrying the smaller and lighter items in the foundry. This measure, coupled with the use of roller conveyors and turn-over machines has enabled the number of cranes in proportion to the production space to be reduced by about 50 per cent. as compared with other foundries. Special attention is given to quality control at the new Oberwinterthur plant, while such matters as ventilation, dust extraction, heating, illumination and personnel comfort generally have received close study. The aim has been to relieve the worker of repetitive and heavy manual tasks by means of new equipment, thereby, at the same time, increasing production by 50 per cent.

Honeywell Capacity will be Doubled

The size of the Lanarkshire factory of Honeywell Controls, Limited, manufacturers of automation equipment, will nearly double over the next three years. The factory, which is on the Newhouse Industrial Estate at Motherwell, now covers 190,000 sq. ft. The Board of Trade has approved plans to increase the size of the factory to 350,000 sq. ft.

The expansion, announced in London recently by the managing director, Mr. C. W. Spangle, will give work to another 1,000 people. Present labour force is 2,000, a quarter of whom have been added this year.

Glover & Main bid £1,000,000 for Benham

An offer, worth nearly £1,000,000, has been made by Glover & Main, Limited, engineers and domestic appliance manufacturers, of London, S.W.1, for the 244,000 issued £1 ordinary shares of Benham & Sons, Limited, cooking, heating, and ventilating engineers, of London, W.1. The total consideration is £244,000 cash and the allotment of £732,000 unsecured 6½ per cent. loan stock, 1964.

Earlier this year Glover & Main announced the acquisition for £1,100,000 cash of James Stott & Company (Engineers), Limited.

BCIRA Annual Meeting

The necessity of maintaining industrial income at a high level, so that the Association could fully benefit from Government grants and thus gain resources for further development was stressed at the fortieth ordinary general meeting held earlier this month in London. Research work and technical services are referred to and other matters dealt with include the election of the new president, vice-presidents and members of the Council.

The fortieth ordinary general meeting of the British Cast Iron Research Association was held in the Connaught Rooms, Great Queen Street, London W.C., on November 1, the president, Mr. C. R. Wheeler, being in the chair. On the proposition of Mr. R. L. Handley, seconded by Mr. James Bell, the thirty-ninth ordinary general meeting minutes were approved and signed.

Report and Accounts

The president, presenting the annual report* and accounts for the year ended June 30, 1960, reminded those present that both had been previously circulated. Last year, he said, was the first in the current five-year Department of Scientific and Industrial Research grant period and he knew the problem of obtaining sufficient industrial income to earn the Government grant had been a constant anxiety to the Council. In the event he thought the actual result had been rather heartening from the point of view of the Association.

Under the current grant terms the Association each year needed £135,000 of grant-earning industrial income to qualify for a block grant of £50,000. For industrial income beyond that, an incentive grant, at the rate of £75 for every £100, was available up to a sum of £24,000. Thus, for £167,000 of industrial income the Association could obtain £74,000 of grant. Actually, the grant earning income last year amounted to £155,507 and the grant obtained was £65,375. That, he thought it would be agreed, was a reasonably satisfactory outcome for the year. However, the ceiling had not been reached and further grant, amounting to £8,625 could have been claimed if an additional income of £11,500 had been obtained from members. Unfortunately, the qualification for DSIR grant was on an annual basis and grant not claimed this year was completely lost. He was sure the industry would wish to do its utmost to see that in the remaining years of the grant period the whole of the grant could be obtained.

Other Financial Considerations

At the start of the financial year the Association had had to assume that the contribution from the Joint Iron Council arising from the pig-iron levy would only amount to £110,000, but he had been delighted to learn that it was possible to increase that to £122,000. He sincerely hoped that everything would be done to maintain the industrial income from that source at a high level for the remaining years in order that not only the full industrial grant could be claimed, but so that the work of the Association could be developed. They needed the income to do the work of the Association, and in particular he would emphasize the desire of the Council to do research work on an industrial scale.

When the DSIR grant terms were first disclosed the Council realized that other sources of industrial income would be required, and on July 1, 1959, new membership arrangements came into operation, under which members wishing to obtain the full services of the Association were invited to enrol as ordinary (B) members, paying a subscription which, in the case of ironfounders, amounted to 0.1 per cent. of the annual foundry wages. The response had been most encouraging and at the time of the Annual Report 426 firms had enrolled, and during the last financial year £30,580 of industrial grant-earning income was obtained from that source. That scheme had thrown a good deal of work upon the Association's staff and he was sure members would wish him to pay tribute to the manner in which this had been dealt with and the way the staff had developed the membership scheme which meant so much to the Association. It was to be hoped that those firms who had not yet enrolled would follow the example of those who were already supporting the new arrangement.

The Association had continued to develop a well-balanced research programme, the results of which had been reported to all members. A concise description was also given in the Report and he thought all concerned with the Association would agree that very good work had been done.

Laboratory Extension

It was well known that the laboratories of the Association were considerably overcrowded and he was sure that members would be pleased to hear that work had begun on the construction of a much needed new laboratory block. Before any considerable expansion of the Association's experimental work could take place it was vitally necessary to increase the accommodation and facilities provided in the laboratories.

The emphasis was on industrial development and in that connection he would pay tribute to the efforts of the director and his colleagues. He thought they had a most efficient staff and he was sure everyone would agree that they had been extremely well served, and those concerned with

* Published in the JOURNAL of November 3, p. 559.

the Association could feel that they were members of a really competent body.

The Association provided technical services to the whole of the ironfounding industry—it engaged in research and development work, it provided a comprehensive advisory service, and represented the interests of the industry in many fields. They, the members, had shown enthusiastic support of the Association and during the year under review it had made great progress. (The president then proposed that the Report and accounts for the year ending June 30, 1960, be adopted. Mr. H. G. Hall seconded the proposal and the resolution was carried unanimously.)

New President

Proposing that Mr. Richard Miles, B.SC., M.I.MECH.E., be elected president of the Association in succession to himself, Mr. Wheeler, the retiring president, said he was very sorry that he could not hold the presidency for the usual period of two years. No doubt some members knew he was taking on presidency of the British Iron and Steel Federation and that, together with his new appointment in the electrical industry, would give him a heavy year, so that, reluctantly, he had had to ask to be released from BCIRA presidential duties.

Mr. Richard Miles, whom he had pleasure in proposing as president was well known to members for he had been extremely active in the industry. It was true he had recently resigned the chairmanship of Head, Wrightson & Company, Limited, but he had received a distinct impression from the directors in that company that Mr. Miles still had a great deal of interest in their affairs, and many others besides.

Seconding the proposal, Mr. H. J. V. Williams said he personally had been very pleased indeed that Mr. Miles had been prepared to accept the office. Knowing the enthusiasm with which he tackled any job he felt that they would have in him someone who would grace that position and be well able to assist them when called upon.

Future Outlook

The proposition when put to the vote was carried unanimously and Mr. Miles then took over the conduct of the meeting. Acknowledging his election, he said it was clear from the activities of his predecessor that the president held a position of great responsibility and it was his desire to discharge the duties of the office with the best interests of the Association and the industry which it served always in mind.

Through his membership of the Council of the Association he was aware of the difficult problems of finance presented to the industry by the current DSIR grant terms. The accounts for last year indicated that while the industrial income permitted a substantial proportion of the grant to be earned, still more grant was available if the industrial income could be raised. He expected that during his term of office serious consideration would be given to the problem of obtaining the appropriate level of income to meet the grant terms likely to be offered in 1964.

The industry was meeting, and would continue to meet, severe competition from alternative materials and processes. Important new developments in moulding and core-making techniques, in foundry equipment and in melting processes were being developed which, if energetically applied, would enable the industry to maintain or even extend its activities. The Association was a unique repository for the latest technical knowledge pertaining to ironfounding, and, still more important, it was the most potent instrument available for the introduction of new methods and processes in the industry.

The Association had a group of well-equipped laboratories with a well organized development and research programme and a most comprehensive member advisory service on all aspects of ironfounding. It was clear that all those facilities had to be extended to meet the present needs of the industry, and it was his earnest desire that during his term of office he might have the opportunity to encourage interest in the Association and its activities and to further the many exciting developments on which it was working. He appreciated that he followed a long line of distinguished presidents. He would endeavour to do his best for the Association and finally thanked members most sincerely for the manner in which they had received his nomination.

Thanks to Retiring President

Proposing a vote of thanks to the retiring president for his services, Mr. S. H. Russell said he thought the Association was extremely fortunate in that it had been able to have the services of Mr. Wheeler as president for a year. He had interested himself intensely in the activities of the Association and in particular he had been able to develop certain funds which might help to swell the income of the Research Association. What they lost the Iron and Steel Federation gained. Mr. Wheeler had made it clear that he would not be able to continue in his capacity for the full two years as president, nevertheless, they were very grateful to him for having taken an active part in their work for the past year.

Mr. M. M. Hallett seconding said that some time ago Mr. Williams and himself were discussing the merits and requirements of presidents. He did not think it wise to say what conclusions they reached but there was no doubt that Mr. Wheeler had shown by his activities on their behalf during the year that he had the qualities required in full measure. They were extremely grateful to him for his most important services to the Association.

It was interesting to notice how the Welsh influence appeared to be dominant because not only Mr. Wheeler, but Mr. Miles, the chairman of the Council and the vice-chairman had Welsh connections, and one began to wonder whether the name of the Association should not be altered

to "The Welsh Cast Iron Research Association!" There were, however, one or two members who were clearly and distinctly English. It was clear that the combination was working very well and it gave him exceptional pleasure to second the vote of thanks. The motion was carried, with acclamation.

Acknowledging the vote of thanks Mr. Wheeler said he had found his year of presidency quite stimulating and it had given him a lot of pleasure, he would be pleased to continue to be of service to the Association.

Election of Officers

The election of Dr. L. B. Pfeil, O.B.E., F.R.S., Mr. G. R. Shotton, F.I.M. (president of the Institute of British Foundrymen) and Mr. G. S. Steven as vice-presidents of the Association, under Article 24, was proposed by Mr. A. E. Pearce, seconded by Mr. W. J. Colton and carried unanimously.

A vote that the warmest thanks of the Association should be accorded to Sir William Scott, Sir Henry Spurrier and Mr. C. H. Wilson, vice-presidents retiring under Article 24, was proposed by Lt.-Col. H. H. Jackson, seconded by Mr. C. H. Johnson and carried with acclamation.

Mr. G. R. Buckley, Mr. H. G. Hall, F.I.M., Mr. R. S. M. Jeffrey, B.SC., F.R.I.C., Mr. G. H. Johnson, M.I.MECH.E., F.I.M., Mr. N. P. Newman, C.B.E., J.P., Mr. E. S. Renshaw, F.I.M., and Mr. P. A. Russell, B.SC., F.I.M., all members of Council retiring automatically under Article 29 and eligible for re-election, were re-elected on a single resolution proposed by Dr. L. B. Pfeil and seconded by Mr. R. Taylor. When submitting the proposition Dr. Pfeil referred with regret to the very recent death of Mr. Freer, whose name would have been included in the resolution; a loss he was sure they all deeply regretted.

The retiring president, Mr. C. R. Wheeler, was on the motion of Mr. Miles, and seconded by Mr. P. A. Russell, unanimously elected an honorary member of the Association.

Mr. A. R. Parkes, who moved a vote of thanks to the Council and committees and sub-committees for their work during the year commented that as a guest and, therefore, a spectator he perhaps saw a little more of the game than some of them. It was for that reason that he proposed that the warmest thanks be accorded the Council, committees and sub-committees for their work during the year. The proposition was seconded by Mr. J. C. Sheckell and carried unanimously.

The chairman, Mr. Miles, when responding to a vote of thanks for his services at the meeting, proposed by Mr. W. Brindley and seconded by Mr. G. E. Lunt, referred to the staff of the Association in terms of praise and appreciation of the willing and painstaking service they always gave. The Association, he said, was happy to have such a staff to serve them.

Mr. Morrogh who replied on behalf of the staff thanked the members and Mr. Miles for their kindly comments on the activities of the staff. He wished to acknowledge the most enthusiastic support which he received from Mr. Whiteside and Dr. Angus and all members of the staff. They were all very conscious of the responsibility given them and regarded it as a great challenge. They were indeed grateful for the support they received from the members of the Association in their work and the very considerable freedom allowed them in the discharge of their responsibilities.

Following the meeting those present attended an informal lunch in the Connaught Rooms.

City and Guilds Examination Results

The City and Guilds of London Institute have made available the following statistics of the results of examinations for students of foundry practice and patternmaking for 1960, with earlier figures for comparison. A change was made in the method of setting the examination papers by the inclusion of questions on all subjects in each paper, and the former intermediate grade now becomes ordinary level and the final grade is referred to as advanced.

Examinations in Foundry Practice.

Year.	Candidates.	First class.	Second class.	Passes, per cent.
Ordinary—				
1960	410	64	209	66.6
Intermediate (old scheme)—				
1959	424	30	263	68.2
1958	375	67	190	68.6
Advanced—				
1960	258	56	112	65.1
Final (old scheme)—				
1959	252	16	149	65.5
1958	281	46	152	70.5

Examinations in Patternmaking.

Year.	Candidates.	First class.	Second class.	Passes, per cent.
Ordinary—				
1960	465	67	334	86.2
Intermediate (old scheme)—				
1959	487	71	265	69.0
1958	482	51	272	67.0
Advanced—				
1960	327	54	191	74.9
Final (old scheme)—				
1959	359	42	212	70.8
1958	323	47	183	71.2

ROLLS-ROYCE, LIMITED, has announced the formation of a new associate company, Rolls-Royce de Espana SA, with the object of developing the manufacture and sale of their products in Spain. The new company will have offices in Barcelona, and the executive direction of the company will be undertaken jointly by Senor Alberto de Virto Casanova, of Barcelona, who will be president and also joint managing director of the company, and Mr. P. C. Birch, of Rolls-Royce, Limited. Other directors are Mr. F. T. Hinkley, managing director of Rolls-Royce International Division, and a director of Rolls-Royce, Limited, who will be vice-president of the Spanish company, and Senor Alberto de Virto Jimenez de Letang, who will also be secretary of the company.

Notes from the Branches

Stoke-on-Trent Section

About 60 members and guests were present to hear Mr. J. F. Dowell deliver his presidential address at the first meeting of the Stoke-on-Trent section of the Institute of British Foundrymen, held last month in the Stipendiary Court Room of Hanley Town Hall. Mr. Dowell stressed that it was from the ever-increasing competitiveness in the world today that the need arose in all sections of industry, and not least the foundry industry, to have a greater knowledge of technical matters. A new language had been imposed on the industry and it now lived in a world of science and technology. The partnership of practical and technical training should be joined at an early age, said Mr. Dowell, and if this was brought about the rewards would be high for those willing to undergo such training and study. If founders looked only to technical colleges for future executives, they would find that the men might not be fully equipped as they would lack the necessary practical experience.

Prospects in the Industry

It had been suggested, Mr. Dowell went on to say, that the best types were not coming forward. It was possible, and indeed very probable, that such men would not come forward until the prospects in the foundry industry were more widely and truly known. He thought it would be advantageous to advise secondary modern schools and grammar schools that there was much more to the foundry industry than dust and sand, molten metal and sweat. If it could be made known to young people that prospects in the industry compared very well with others, then there was a good chance that the industry would attract the brains and potential ability from which to select future executives. His views were very definitely expressed in the motto of the Institute, "Science hand in hand with Labour."

The difficulty was in giving practical expression in the industry to these sentiments, said Mr. Dowell, and he felt most strongly that the work of the Institute in general, and that of the section in particular, was playing no small part in helping to create the proper conditions. The president was thanked by the retiring president, Mr. G. H. Charsley, and the section vice-president, Mr. B. Cordall. The remainder of the evening was devoted to the showing of two films—"High Level" and "Project 040"—kindly loaned by Foundry Services, Limited.

Works Visit

The first works' visit of the section to the factory of the Goodyear Rubber Tyre Company, Limited, Wolverhampton, was exceptionally well supported. About 50 members and guests left Newcastle-under-Lyme at 6 p.m., and arrived back in Newcastle at 10 p.m. The tour of the works occupied a little over two hours, and with the assistance which the guides provided, proved most interesting and instructive.

Birmingham

About 130 members and guests attended the "Men Only" dinner of the Birmingham, Coventry and West Midlands branch held November 4, at the Ward Arms Hotel, Dudley. This was a revival of a function last held by the branch six years ago and the good attendance was somewhat remarkable in view of the fact that the event had been omitted from the annual calendar of the branch in recent years because of reducing attendances. Mr. M. M. Hallett, president of the branch, was in the chair, and the proceedings were completely informal, there being no toasts other than that to "The Queen." Light entertainment was provided by Arthur Knowle, tenor, the Korday Sisters (accordianists), Shirley du Cros (singer), Dick Lawler (comedian), and Charles Matty at the piano. At the conclusion, members and guests expressed the view that "the revival" had come to stay.

East Anglian Section

"Full to capacity" is again the report for the East Anglian section's annual dinner held at the Oriental Café in Ipswich on Friday, November 4. After the meal, Mr. K. Bolton, junior vice-president and secretary of the section, proposed the toast "The Institute," the response being made by Mr. D. A. C. Hutchison, London branch president, who remarked that he was very happy to be at the function; he had noted a significant number of famous foundries and foundrymen were domiciled in East Anglia. The toast to the section was proposed by Mr. S. C. Marlow, who said he felt this a great honour. He referred to illustrious past-presidents, including such personalities as Mr. Tibbenham, Mr. Kain and Mr. George and said the membership of the section had been steadily increasing for years due to the ceaseless efforts of presidents and secretaries, also congratulating Mr. T. D. Oughton, who had so successfully carried on tradition. Mr. Oughton responded

Officers and Council of the IBF Stoke-on-Trent section at the opening meeting of the 1960-61 *session. Seated from left to right are: Mr. B. Cordall (vice-president); Mr. J. Dowell (president); Mr. G. H. Charsley (immediate past-president), and Mr. J. Bailey (hon. secretary).*

to this toast by thanking everyone for such excellent speeches and for the kinds words about himself.

As usual, the entertainment was first class, being given by "The Benny Lion" group, with personal vocal renderings by Mr. D. A. C. Hutchison and Mr. Bob Berry. The evening closed with Mr. Berry thanking Mr. Vernon W. Child for the hard work he had put in in making the evening so enjoyable, and for the excellent way he had organized both the dinner and entertainment.

The photographs reproduced here were taken during the IBF "National Works Visits Day" function held on October 28 in the Sheffield area. Alongside is shown a party of members at the works of the Staveley Iron & Chemical Company, Limited. The company produces very large pipe cores, and in the illustration Mr. H. Pettifer, progress manager, is seen explaining a point to the visitors.

Other pictures reproduced on this page show a view of the luncheon held at the Royal Victoria Station Hotel at which English Steel Corporation acted as hosts to the party which had visited their works during the morning. Standing in the rear are, mainly, English Steel Castings Corporation directors and staff who acted as guides. Below (left) some of the morning's party are examining a steel bogie-frame casting at the works and (right) Mr. J. Blakiston (left, centre), a past-president of the Institute, is discussing a mould with Mr. E. J. Colton, chief metallurgist, during the visit to Newton Chambers & Company, Limited.

JIC Banquet

Leading Personalities of the Foundry and Iron-producing Industries meet The Duke at Guildhall

The Duke of Edinburgh greeting the president, Mr. N. P. Newman, C.B.E., J.P., at the banquet held at Guildhall, London.

The Joint Iron Council was privileged to have H.R.H. the Duke of Edinburgh and the Lord Mayor of London (then, Sir Edmund Stockdale) as principal guests at its annual banquet held (by courtesy of the Lord Mayor) at Guildhall, London, on Tuesday, November 1. Other notable guests included the Minister of Power, the Rt. Hon. Richard Wood, M.P. At the reception prior to the banquet a selected number of the 700 attending were presented to His Royal Highness (see JOURNAL, November 3).

This year, in acknowledgement of the special occasion, three toasts followed that of the loyal toast. "The Lord Mayor, the Corporation of London and the Sheriffs" was proposed by Mr. Malcolm J. Glenny, chairman of the Council of Ironfoundry Associations, and the Lord Mayor replied. Then followed the toast to "The Iron Industry" proposed by Prince Philip in which he said:—

The Duke's Speech

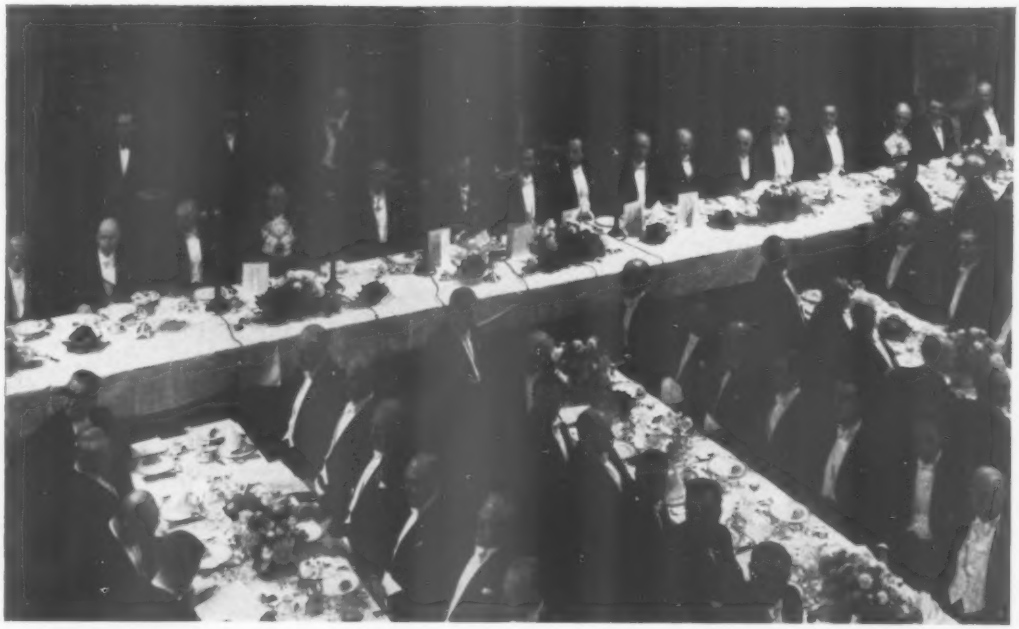
"I know that all your guests here would like me to say how much we have enjoyed your banquet this evening. Some of us were in fact pleasantly relieved to find that in this age of stunts and gimmicks you overcame the temptation to offer us "iron rations."

I don't believe there was ever any fear of this happening because although the Joint Iron Council is still rather young it represents an industry which stretches back into antiquity. In fact it is one of only three industries which has had an age named after it. (I say three industries although I'm not quite sure whether there is in fact anything which calls itself the stone industry, except in the penitentiary!) Anyway, I cannot believe that an industry with such a weight of past to bear would ever descend to gimmickry.

Historically the Iron Age started some 3,000 years ago, but industrially speaking the modern Iron Age started, or started with, or was started by, the Industrial Revolution. Like the chicken and the egg it's difficult to disentangle which came first. Whichever it was it is quite certain that the iron industry was the mainspring of the industrial expansion and prosperity of these islands during the 19th century. Even to this day it is indispensable to heavy engineering which is still a British speciality.

In fact the iron industry has long held a particularly important place in the economy of the British Isles. Unfortunately it is its very age and importance that tend to make progress and improvement quite an uphill struggle. The great centres of iron production, and ironfounding have bred communities with special skills and traditions but those communities grew up before anyone had even heard the expression industrial relations. Their towns were built before anyone

Reception of prominent foundrymen by Prince Philip, Duke of Edinburgh, before the banquet. Left to right (facing the Duke) are: Sir Frederick Scopes; Mr. M. J. Glenny; Mr. Francis D. Ley, T.D., D.L., J.P.; Mr. D. Graham Bisset, and Mr. H. V. Shelton.



Small section of the Guildhall banquet scene. At the part of the top table which is shown are seated (from left to right): Sir Graham Hayman, His Excellency E. N. van Kleffens, Mr. M. J. Glenny, the Rt. Hon. the Lord Mayor of London, Mr. N. P. Newman, C.B.E., J.P. *(who presided), the Duke of Edinburgh, Mr. N. C. Macdiarmid, the Rt. Hon. Richard Wood,* M.P. *(Minister of Power), Sir Frederick Scopes, Sir Lincoln Evans,* C.B.E., *Mr. R. F. Summers, M.Inst.T., the Rt. Hon. the Earl of Verulam, Mr. A. R. McCosh, Sheriff A. K. Kirk, Mr. C. R. Wheeler,* C.B.E., *and Mr. H. S. Cheetham,* M.INST.GAS.E.

took industrial town-planning seriously. The works themselves just grew with demands and when odd bits of land became available.

Training was limited to apprenticeship which, as a system, was intended to meet an entirely different order of industrial organization. University degrees or technical diplomas, courses for foremen or training in management were unheard of.

But even so, within the industry the genius of the old iron masters gave the industry an undisputed lead throughout the world at the end of the 18th and the beginning of the 19th centuries. While research as a word would have baffled those men, their advice was sought on the continent and their men were sent to train foreign workmen.

In face of this no one would be surprised to find that the iron industry of today still existed on its traditions of greatness, obstinately refused to recognize change or rose up in anger at any word of criticism. In fact, of course, as you all know very well the situation is quite different. There is a proper awareness of the responsibilities of management and industrial relations are getting the attention they deserve. The British Cast Iron Research Association has done great work and the results of its scientific and technical research are welcomed and applied while new mechanical aids are constantly improving productivity. Education and health are also getting their full share of serious consideration.

Instead of bewailing its fate, the industry has corrected its own faults, instead of blaming everything and everyone else when business declined the industry set about putting its own house in order. (Until JIC came along it had made magnificent achievements on its own.)

By any test the Iron industry is still an essential component in our industrial economy and one which by its efficiency or inefficiency can have a decisive effect upon our chances in world markets.

I congratulate the industry and the Joint Iron Council on what they have achieved so far and I would urge them to keep up, indeed to step up, the good work so that this old industry will be looked upon by old and new alike as an example of what a British industry should be. Traditional skill in workmanship and management, combined with modern techniques, should make this possible and the whole nation will be richer for it."

Structure of the JIC

Mr. N. Newman, C.B.E., J.P., president of the JIC, in his response to the toast referred to the last occasion on which the Council had held its banquet in the Guildhall, this, he said, had been in 1952 when Sir Leslie Boyce, who had particular foundry associations, was Lord Mayor. He went on to detail the structure of the JIC embracing both producers and consumers, and

JIC Banquet

said it might be a model for other associations. After congratulating the British Cast Iron Research Association on its excellent work, he referred to the objectives of the JIC and mentioned in particular the work being carried out on health problems, especially pneumoconiosis. He was pleased to say that the fund for the rebuilding of the National Foundry Craft Training Centre had now almost reached £20,000; rebuilding could be started when £25,000 was realised. He then referred to the work of the European Committee of Foundry Associations and particularly welcomed to the gathering Dr. E. Weinberger, president of that Association. He closed with an expression of faith in the iron industry's ability to maintain its present prominent position in British industry. Mr. N. C. MacDiarmid, vice-president, JIC, and chairman of the Council of Iron Producers, then proposed "The Guests" and the Rt. Hon. Richard Wood, replied.

Notabilities Present

Among those present were Sir Hubert Ashton, Mr. D. G. Bisset, Mr. H. A. Bonney, Sir Herbert Brittain, Mr. J. W. Butler, Mr. R. Gresham Cooke, M.P., Mr. J. Dance, M.P., Sir Lincoln Evans, Mr. D. L. Farrant, Sir Leslie Gamage, Mr. Charles Glenny (Mr. Malcolm Glenny), Mr. M. M. Hallett, Mr. R. L. Handley, Sir Graham Hayman, Mr. Walter Hovelmann, Lieutenant-Colonel F. L. Jackson, M.P., Sheriff A. K. Kirk, Mr. E. N. van Kleffens, Mr. E. H. C. Leather, M.P., Mr. F. D. Ley, Mr. A. R. McCosh (Mr. N. C. Macdiarmid), Mr. Kenneth Marshall, Mr. S. W. Martin, Mr. Gordon Matthews, M.P., Mr. Richard Miles, Sir Ronald Morison, Q.C., Mr. Arnold Pearce, Brigadier R. H. S. Popham, Sir Peter Roberts, Sir Leslie Robinson, Mr. John Rodgers, M.P., Mr. S. H. Russell, Sir Frederick Scopes, Mr. H. W. Secker, Mr. H. V. Shelton, Mr. W. S. Shepherd, M.P., Sir Robert Shone, Mr. G. R. Shotton, Mr. D. O. Sillars, Squadron-Leader J. Severne, Colonel Alderman and Sheriff R. H. Studholme, Mr. R. F. Summers, Mr. B. H. Tripp, Mr. S. N. Turner, the Earl of Verulam (Dr. Emil Weinberger), Mr. W. T. Wells, Q.C., M.P., Mr. C. R. Wheeler, Mr. C. H. T. Williams, Mr. H. J. V. Williams.

Music during the evening was provided by the string orchestra of the Honourable Artillery Company, by kind permission of the officer commanding, Lt.-Col. R. D. Hunter, M.C. In attendance were the company of pikemen and musketeers of the Honourable Artillery Company, by kind permission of the Rt. Hon. the Lord Mayor, commanded by the captain, Lt.-Col. G. H. Champness, O.B.E., T.D.

News in Brief

THE TELEPHONE EXCHANGE for the Ministry of Aviation, Shell Mex House, has been changed from GERrard 6933 to TEMple Bar 1207.

NEGRETTI & ZAMBRA, LIMITED, announce the opening of a new branch, with showroom, service and supply depot, at 38, Dean Street, Newcastle-on-Tyne.

THE IMPORT DUTIES (GENERAL) (NO. 11) ORDER, 1960, (S.I. 1960, No. 1970), which removes the import duty on certain flake graphite and anhydrous borax, came into operation on November 2.

THE MAYOR OF THE CITY OF GUATEMALA, Mr. Luis F. Galich, together with other officials of that city paid a visit recently to the Stanton Ironworks' Company, Limited, near Nottingham.

THE INDUSTRIAL WELFARE SOCIETY reports that the record number of more than 10,000 delegates will have attended their conferences and courses within the 12-month period ending in December.

SRO BEARING COMPANY (SALES), LIMITED, the recently-formed British sales organization of SRO Ball Bearing Works Schmid-Roost, Switzerland, have opened premises at 164, Camberwell Road, London, S.E.5.

A £15,000 EXTENSION to the Falkirk works of the Grange-Camelon Iron Company, Limited, Grange Iron Works, has been approved. It is proposed to erect assembly shops, stores and warehouses at Camelon.

A MEMORIAL PLAQUE to the late Professor F. C. Lea, whose name is associated with research into metal fatigue, is to be unveiled on November 18 in the laboratory named after him in Sheffield University. Professor Lea died in 1952.

THE PRINCESS ROYAL recently declared open Northern Ireland's new oil-fired power-station at Coolkeeragh, Co. Londonderry, adjoining the new industrial plants of Du Pont (United Kingdom), Limited, and Carbide Industries, Limited.

A FIRE at the works of Archibald Kendrick & Sons, Limited, ironfounders, Houghton Street, West Bromwich, destroyed the 70-ft. long timber roof of the pressing shop. Firemen prevented the fire from spreading to surrounding shops.

LIGHTALLOYS, LIMITED, part of the Manganese, Bronze and Brass Group, is transferring the bulk of its works to Deans & Son (Yorkshire), Limited, at Beverley, East Riding. Part of the works are also to be shifted to Glasgow and Ipswich.

LOUGHBOROUGH COLLEGE OF TECHNOLOGY announce seven courses in work-study and allied management subjects to take place during the Lent term, 1961. Details are available from the Department of Industrial Engineering of the College at Loughborough, Leicestershire.

A 39-YEAR-OLD WELDER, Mr. J. Chipchase, was trapped by the legs when a 12 cwt. moulding box fell from a crane operating at the foundry of Qualter Smith, Limited. After he had been freed by fellow workmen, Chipchase was later admitted to Barnsley Beckett Hospital with a suspected fracture.

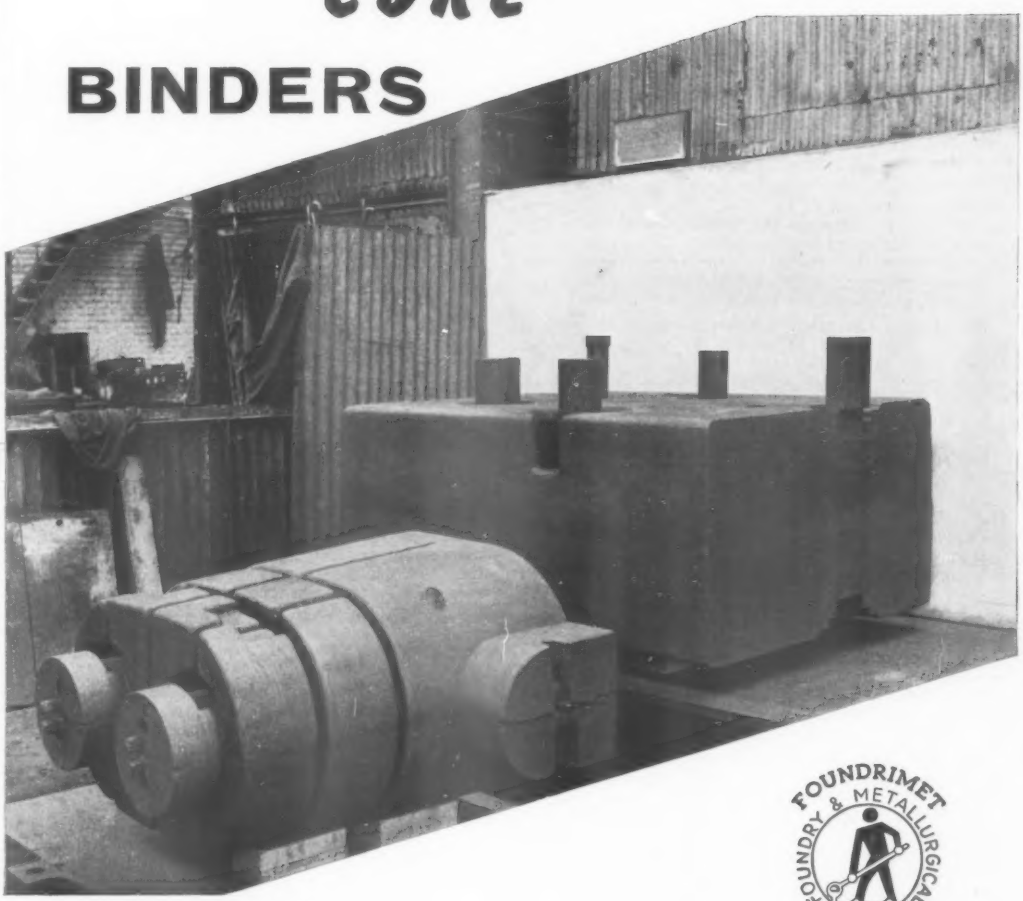
CEMENTATION COMPANY, LIMITED, Bentley, Doncaster, has formed a new branch in Australia, to operate initially from Melbourne. The branch will concentrate on all aspects of foundation engineering. The company is already taking a large part in work in Tasmania, on the Catagunya Dam project.

AN APPLICATION to extend Storrs Fireclay Works at Loxley, Sheffield, made by T. Wragg & Sons, Limited, has been approved by the Wortley Rural District Council. Thos. Marshall & Company, Limited, have also been granted permission by the Council to build a laboratory, offices and a canteen at Loxley.

FEDERATED FOUNDRIES, LIMITED, of Glasgow, has ordered three Leyland Comet haulage trucks and four Leyland Comet-Scammell tractors. The haulage chassis will be fitted with drop-side platform bodies by A. Laurie & Sons, of Falkirk, and the tractors will be supplied with 20 ft.-long Scammell semi-trailers.

WORK STARTS THIS MONTH on a £831,000 technical college which is to be built in Kilmarnock. Plans for site preparation work costing £35,000 have been approved. The college is one of two which are to be built in Ayrshire; the other will be at Dam Park, Ayr. It is expected that the Kilmarnock college will be completed in 1964.

SUPINOL CORE BINDERS



Photograph of cores weighing approx. 35 cwts by courtesy of Seagers Ltd. Dartford.

FOUNDRIMET FOUNDRY & METALLURGICAL F&M.S.L.

Manufactured by

F. & M. SUPPLIES LIMITED

4. BROAD STREET PLACE LONDON E.C.2.

TELEPHONE: LONDON WALL 7222 (4 lines)

FACTORY: CONCORDIA WORKS, LONDON, E.14.

Prompt deliveries from stocks in

GLASGOW · MANCHESTER · SHEFFIELD · BIRMINGHAM & LONDON

News in Brief

A ONE-DAY CONFERENCE on the "Importance of Engineering Services to Modern Management" is being held by the British Institute of Management, at the Connaught Rooms, Great Queen Street, London, W.C.2, on December 1. Further information may be obtained by writing to the Institute at 80, Fetter Lane, London, E.C.4.

STAHL UND EISEN, the German weekly journal covering the iron and steel industry, has published a special issue in connection with the centenary of the *Verein Deutscher Eisenhüttenleute* (the German ironmasters' association). It is a stupendous edition running it is estimated to about 1,000 pages. It includes a very extensive buyers' guide.

PEGLERS, LIMITED, Doncaster brassfounders, whose premises are subject to the new Clean Air regulations in the borough, estimate that they can save about £20 a week by observing the regulations. They are testing an incinerator that burns oil, makes no smoke, can be used for making brass ingots and also heat the workshop in which it stands.

DISTILLERS COMPANY, LIMITED, chemical division, announce that since November 1, selling prices of all grades of acetic acid are based exclusively on the size of delivery, and the previous basis of calculating prices on contract quantities is abolished. The revised prices give an overall reduction of about 7½ per cent. for all grades.

ON NOVEMBER 28, 312 employees and pensioners of Geo. Salter & Company, Limited, will receive long-service awards at a reception in West Bromwich Town Hall. The awards include watches, clocks and barometers for 25 years' service and cheques for 50 years, in a new scheme inaugurated this year as part of the company's bi-centenary year celebrations.

ALLIED STEEL & IRON COMPANY, LIMITED, of Foundry Street, Whittington Moor, Derbyshire, with headquarters in Sheffield, hope to be able to build a new foundry and offices on a site in Pottery Lane, Whittington Moor, for the production of precision castings in steel. The Board of Trade certificate has not yet been obtained, however, and Chesterfield Corporation are considering the question of possible air pollution.

ENGLISH ELECTRIC COMPANY, LIMITED, Phoenix Works, Bradford, have secured an order for 98 sets of engines and transmissions to equip diesel shunting locomotives. They are part of the £5,500,000 contracts concluded by BTC. The Bradford order is made up of 350 h.p. diesel engines and electric transmissions, 35 units for locomotives to be built at British Railways' workshops at Darlington and the rest to be built at Horwich.

AN ORDER received by G. & J. Weir, Limited, Glasgow, from South-west Africa is for a sea-water distillation plant, to produce 120,120 gal. of pure fresh water daily from the sea. It will be set up at Luderitz, a small seaport and railway terminal serving the Namaqualand alluvial diamond mining area. Water from existing sources is very expensive, and it is expected that the water from the new plant will cost under half the current price.

BUELL, LIMITED, have received instructions from Head Wrightson Iron & Steel Company, Limited, main contractors for the new development "Temper," at the works of the Appleby-Frodingham Steel Company, Scunthorpe, for the supply of three rotary drum dryers. The dryers, which will be manufactured by the parent company, Edgar Allen & Company, Limited, in Sheffield, will handle up to 130 tons per hr. input of Northamptonshire iron-ore.

A NEWLY-FORMED SUBSIDIARY of the Pressed Steel Company, Limited, Cowley, Oxford, British Executive & General Aviation, Limited (to be known as Beagle), is considering manufacturing aircraft parts at Linwood, Renfrewshire. The new company has been formed for the design and manufacture of a new range of executive and light aircraft for the home and export markets. Mr. Peter G. Masefield, a director of Pressed Steel, is managing director of Beagle.

OVERTIME WORKING at the Doncaster factory of the Ford Motor Company, Limited, has almost stopped again. The back log of orders is almost finished and most workers are back to a 41-hour week. Overtime is continuing for essential maintenance work. The factory went on to overtime working at the beginning of October at a time when many other workers in the industry were either being laid off or put on short time. There has been no question of redundancy or of a reduction of hours below normal working week.

SHEFFIELD will have sufficient smokeless fuel available to implement their latest smoke-clearance order, affecting the Hallam area, when it comes into force on May 1, 1962, affirmed Alderman Mrs. Patience Sheard, chairman of Sheffield health committee, at Sheffield City Council on November 2. At all stages consideration had been given to the availability of fuels, and the Coal Utilization Council had been very co-operative in discussions on the amount of fuel needed. The Council adopted a resolution making the Order.

A £250,000 TRAINING CENTRE—opened on November 4 at Mossend, Lanarkshire, by Mr. J. S. Maclay, Secretary of State for Scotland—will be used to instruct Colville's apprentices in jobs ranging from engineering and metallurgy to commercial practice and crane driving. Every aspect of steel manufacture is dealt with at the school which has 150 apprentices at a time under 16 instructors. Following their spell in the training centre, the apprentices are distributed throughout the various Colville works to acquire additional experience.

A NEW ATTITUDE of mind is needed in industrial relations said Brigadier J. A. Barraclough, chairman of the Midlands area of the Engineering and Allied Employers' Association, at the annual dinner of the National Association of Drop Forgers and Stampers. The answer he went on was to be found in the right kind of leadership from both employers and trade unions. The TUC had begun to think about it and the Minister of Labour was taking interest to the extent that he had invited employers and unions to get together and form a study group.

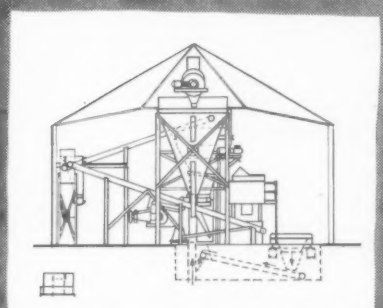
DR. R. A. TREVETHICK, medical officer of Steel, Peech & Tozer, Rotherham, who has recently returned from a visit with Dr. B. P. R. Hartley, medical officer at Samuel Fox & Company, Limited, Stocksbridge, from a visit to America, where they attended the occupational health conference in New York and went to several steelworks medical departments, reports that "These departments are approximately twice as big as their equivalent in this country, and are staffed not only by doctors and nurses, but radiographers and laboratory technicians on a far more generous scale than is customary in this country." But treatment is not offered to workers there who are taken ill from any cause other than occupational and the relationship between medical officers and workers seemed "much more impersonal and mechanical." Welfare facilities, he states, are almost non-existent, but safety consciousness is more apparent than in this country.

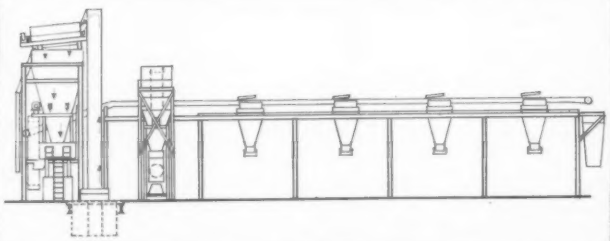
SAND PREPARATION AND DISTRIBUTION PLANT

Designed and built by engineers with practical foundry experience for over 100 years

Since 1844, there have been Foundries in the RICHARDS Group. After World War II new sand preparation and handling plant was needed to ensure greater output and efficiency. Richards knew from long experience what they wanted – they designed and built their own plant (which included, of course, the now well tried and proven MULL MIXER). Every item was made to avoid the foundryman's nightmare – breakdowns and heavy maintenance.

We welcome inspection of what has been achieved over the past 10 years. See what a foundry has built for its own use. Richards will design and supply your plant on the same sturdy and efficient lines.





FOUNDRY PLANT BY Richards

Richards Structural Steel Co. Ltd., Phoenix Iron Works, Leicester 61237

ABBF Notes

In *Bulletin No.* 62, issued by the Association of Bronze & Brass Founders, it is reported that the reconstituted Committee on Patternmaking and Foundry Practice of the City and Guilds of London Institute is at present considering how the training of craft apprentices could receive more emphasis on practical rather than on the technical aspects of founding.

Additionally, there is quoted an extract from an American journal which reads: A study of materials handling in a modern foundry in each of eight facets of production—pouring, shakeout, sprueing, heat-treatment, cleaning, inspection and shipping, shows that to make one ton of castings, 90 tons of materials must be moved over two miles horizontally, and 1,553 ft. vertically! The *Bulletin* suggests this is worth looking into.

A lengthy summary is printed towards the end of the *Bulletin* on work of interest to the bronze foundry industry which has been carried out by the British Non-Ferrous Metals Research Association. It is pointed out, however, that, in general, detail reports on such work are only made available to members of the Research Association or of the ABBF Research Group. Topics surveyed include: melting and casting practice, test-bars, shell-moulding, alloy development, impurities, mechanical properties, air pollution and methods of analysis.

TI's New Steel Project

Tube Investments, Limited, announces that the Iron and Steel Board have approved proposals by its subsidiary, the Park Gate Iron & Steel Company, Limited, for the development of a new integrated works on a site adjacent to the existing Park Gate Works, near Rotherham. Plans have also been made to accommodate future modernization of the existing steel works in perhaps 10 to 15 years' time. The new works will use home ore and will initially include ore-preparation plant, one blast-furnace, a steelmaking department producing steel by the "Kaldo" process and an electric furnace and a blooming mill, billet mill, rod, bar and strip mills. The new works will cost between £55,000,000 and £60,000,000 and will produce about 425,000 ingot tons a year. The main engineering consultants will be the International Construction Company, Limited, and Bylander, Waddell & Partners. Work will start in 1961, and the plant will be commissioned early in 1964 and be in full operation by 1965. It is reported that it will be one of the most advanced and economical steelworks in Europe. The cost will be financed by TI, partly from its own resources and partly by borrowing.

Metal Industries in Australia

Metal Industries, Limited, announces a reorganization of its interests in Australia. Its wholly-owned subsidiary, Lancashire Dynamo Coates Pty., Limited, of Melbourne, is being amalgamated with Godfrey Electrical Industries Pty., Limited, of Sydney, by the setting up of a new company to take over both businesses. For some time Metal Industries has held half the ordinary and a majority of the preference share capital of Godfreys. To facilitate the reorganization, it has now purchased the remainder of the shares. The price is not being disclosed. The new company will be known as M.I. Australia Pty., Limited. Its chairman will be Mr. William McPherson, until recently commercial director of Unilever Australia Pty., Limited. The general manager will be Mr. D. J. Buckingham, formerly general sales manager of B.I.C.C. (Australia) Pty., Limited.

Die-casters visit USA

Recently 12 leading die-casting engineers took part in a short visit to the United States arranged by the Zinc Alloy Die Casters Association. The team included Mr. J. A. Goddard, chairman of the Council, and Mr. F. C. Claxton, chairman of the technical committee, as well as other prominent members of the Association. On arrival in New York they were joined by several engineers from the Continent. All over the world pressure-die-casting is steadily expanding and the large American industry has been responsible for many of the most important technical developments in recent years.

During the first week, visits were made to an exhibition and die-casting works in New England arranged for ZADCA by the American Die-Casting Institute. The week was concluded with a full technical discussion and exchange of views at the Institute's headquarters in New York. In the second week the UK team took part in the First National Congress on Die-casting in Detroit arranged by the Society of Die-Casting Engineers. Leading American experts presented papers on different aspects of die-casting and there were also visits to several die-casting plants operated by the large motor manufacturers near Detroit. In conjunction with the Congress an exhibition of die-casting machines and equipment was held.

A review of American progress is to be given by the British team at technical discussion meetings to be held by the Association in London and Birmingham this winter. Later on American developments will also be discussed by the European Pressure Die-Casting Committee.

Joseph Sankey Anniversary

This month (November) marks the 50th anniversary of the Hadley Castle works of Joseph Sankey and Sons, Limited, and on November 4, to mark the jubilee, special messages, including one from the Duchess of Kent, were issued to employees. Mr. J. R. Martin, director and general manager of the works, who has been associated with the company for 42 years, said in his message to employees: "It has not always been an easy path and there have been difficult times which have been surmounted by skilful management and understanding on the part of our work-people. The chairman and directors join me in publicly expressing our grateful thanks to all those who have worked untiringly to build Sankey of Wellington into Shropshire's biggest factory with an output which reflects the greatest credit on all concerned."

It was in November, 1910, that Joseph Sankey and Sons, Limited, of Bilston, bought the Hadley Castle works for £30,000. It was largely due to Mr. Wingfield Burton, works manager at the Albert Street, Bilston, works that the first pressed and welded detachable car-wheel was developed and patented. To cope with the increased business which followed the Patent, the Hadley works were acquired and about 100 employees moved there from Bilston. To-day 6,000 people work at the Hadley plant and in addition to the production of 20,000 wheels a day many other products are manufactured including car-chassis frames, automatic vending machines, office equipment, tractor parts, foundry ladles, roofing sheets and so on.

THE ONE-HUNDREDTH 1,000-h.p. diesel locomotive built by English Electric, Limited, for British Railways, left the Vulcan Foundry at Newton-le-Willows, Lancashire, last month, for service on the London Midland Region after trials.

From the Goodyear family tree

LONG LIFE IN THE BALANCE

There is amazing long life in Goodyear HDNF (Heavy Duty Nylon Fill) Conveyor Belting—proved on the toughest jobs, longest hauls, highest lifts. The long life is due to the balance struck between the Nylon fill and the lengthwise tension-carrying cotton warp. Results? Exceptional impact resistance . . . strong rip and tear resistance . . . excellent trough-ability . . . outstanding load-carrying capacity . . . better fastener-holding ability . . . superiority proved on the most rugged duties.

Contact the Goodyear Technical Service for full details of HDNF Conveyor Belting by Goodyear—number one choice for the toughest job.

* Nylon gives twice the impact resistance of identically made cotton fabric belting.
* Outstanding resistance to rip and tear helps prevent costly shutdowns.
* 10%-15% higher fastener pull-out strength.
* Belts train easily, run smoother.
* More Nylon means bigger pay loads.
* Longer flex-life because efficiently woven fabric permits thinner gauge plies.
* Mildew-proof.

TRANSMISSION BELTS
HOSE
V-BELTS
CONVEYOR BELTS
FENDERS

GOODYEAR

THE GREATEST NAME IN RUBBER

The Goodyear Tyre & Rubber Company (G.B.) Ltd., Industrial Products Department, Wolverhampton
Export Enquiries: 17 Stratton Street, London W.1

Goodyear products are manufactured in: Argentina, Australia, Brazil, Canada, Colombia, Cuba, Eire, England, Germany, India, Indonesia, Japan, Luxembourg, Mexico, New Zealand, Peru, the Philippines, Scotland, South Africa, Sweden, the United States, Venezuela. Branches, Distributors and Dealers throughout the world.

Personal

Mr. K. D. VICK, London manager of Cranes (Dereham), Limited, has been appointed a director.

H.R.H. THE PRINCE PHILIP, DUKE OF EDINBURGH, has been elected an honorary member of the Institution of Mechanical Engineers.

Mr. W. G. HULL, F.I.M., is amongst those who have been the recipients of Insignia Awards in Technology of the City and Guilds of London.

Mr. E. J. HUNTER has been appointed a director of Consett Iron Company, Limited. He is also chairman of Swan, Hunter & Wigham Richardson, Limited.

Mr. J. S. WATKINS, Imperial Chemical Industries, Limited, Billingham division, has been appointed a director of Scottish Agricultural Industries, Limited, a subsidiary of ICI.

Mr. J. SHEARD, Mr. J. MANNION and Mr. J. S. TAYLOR have been appointed additional directors of Kay & Company (Engineers), Limited, tube-fittings manufacturers, Bolton.

Brooke Tool Automation, Limited, announce the following appointments to the board, Mr. HARRY H. EVANS, Mr. E. W. HANCOCK, O.B.E., M.I.MECH.E., HON.M.I.PROD.E., and Mr. K. G. WALTON.

At the annual general meeting of the *Syndicat Général des Fondeurs de France*, Mr. MAURICE OLIVIER announced that Mr. PHILIPPE DELACHAUX was to be joint president to assist and replace him when necessary.

Mr. GORDON W. TODD, manager of the national sales department of Shell-Mex & BP, Limited, since the department's inception in 1954, has retired, after 38 years' service with the company. He is succeeded by Mr. W. CHARLTON.

Mr. P. T. STEPHENS has been appointed deputy chairman of the Saunders Valve Company, Limited, valve and pump manufacturers, Cwmbran (Mon.), Leeds, Wolverhampton, etc., and will continue as joint managing director.

Mr. R. D. F. MARLOW has been appointed assistant director-general of the Institute of Directors. He has been deputy assistant secretary of the London Chamber of Commerce since 1946 and is secretary of a number of trade associations.

Following the retirement of Mr. J. ABBERLEY, the board of Firth Cleveland Tools, Limited, announce that Mr. J. C. ABBERLEY has been appointed director in charge of their Tipton Works, and Mr. A. H. MCILREATH, director in charge of the Wolverhampton factories.

Mr. F. SMITH, manager of the Leeds branch of the General Electric Company, Limited, London, for the past 10 years, retires at the end of the year after 41 years' service with the company. He joined in 1919 as assistant branch engineer and in 1931 became branch engineer.

The Minister of Power has appointed Sir HAMISH D. MACLAREN, president of the Institution of Electrical Engineers, and Sir VINCENT TEWSON, general secretary of the Trades Union Congress from 1946 until his recent retirement, as part-time members of the London Electricity Board.

Bonnington Castings, Limited, announce that Mr. JACK BLACKBURN, works manager, has been appointed to the board of the company. Prior to joining Bonnington two years ago, Mr. Blackburn was steel foundry manager with the Osborn Foundry & Engineering Company, Limited.

Colonel H. A. LEWIS has been appointed managing director of Newmark (London) Distributors, Limited, precision-instrument manufacturers. He is relinquishing his appointment as managing director of E.M.I. Sales & Service, Limited, a subsidiary of Electric & Musical Industries, Limited.

Mr. H. I. S. CATHERWOOD has been appointed sales director, Sigmund Pumps, Limited, Team Valley, Gateshead, in succession to Mr. H. P. LORD who has been appointed managing director of International Boilers & Radiators, Limited. Mr. Lord will continue as a director of Sigmund Pumps.

Mr. JEAN LAINÉ, a past-president of the *Association Technique de Fonderie* and head of the French foundry technical college, has been decorated with the insignia of Officer of the Legion of Honour. His many friends all over the world will join with the JOURNAL in congratulating Mr. Lainé on his new distinction.

Long-service awards have been made to Mr. GEORGE BROWN, clerk of works department; Mr. ROBERT BELLINGHAM, foreman, dressing- and machine-shop; Mr. ROBERT RUSSELL, moulding shop; and Mr. JOHN PATERSON, baths attendant, on completing 50 years' service with Smith & Wellstood, Limited, ironfounders, Bonnybridge.

Mr. HENRY ALLEN has been appointed industrial relations director of the Yale & Towne Manufacturing Company's British divisions. Aged 47, Mr. Allen is chairman of the Willenhall and District Local Employment Committee and of the Wolverhampton and Black Country branch of the Institute of Personnel Management. He is a Justice of the Peace.

Mr. E. W. PARRY, engineering manager and director of Cammell Laird & Company, Limited, Birkenhead, was re-elected chairman of the National Association of Marine Engine-Builders, on November 2. Mr. D. G. OGILVIE, managing director of Hawthorn Leslie (Engineers), Limited, and a director of Hawthorn Leslie (Shipbuilders), Limited, has been re-elected vice-chairman.

Obituary

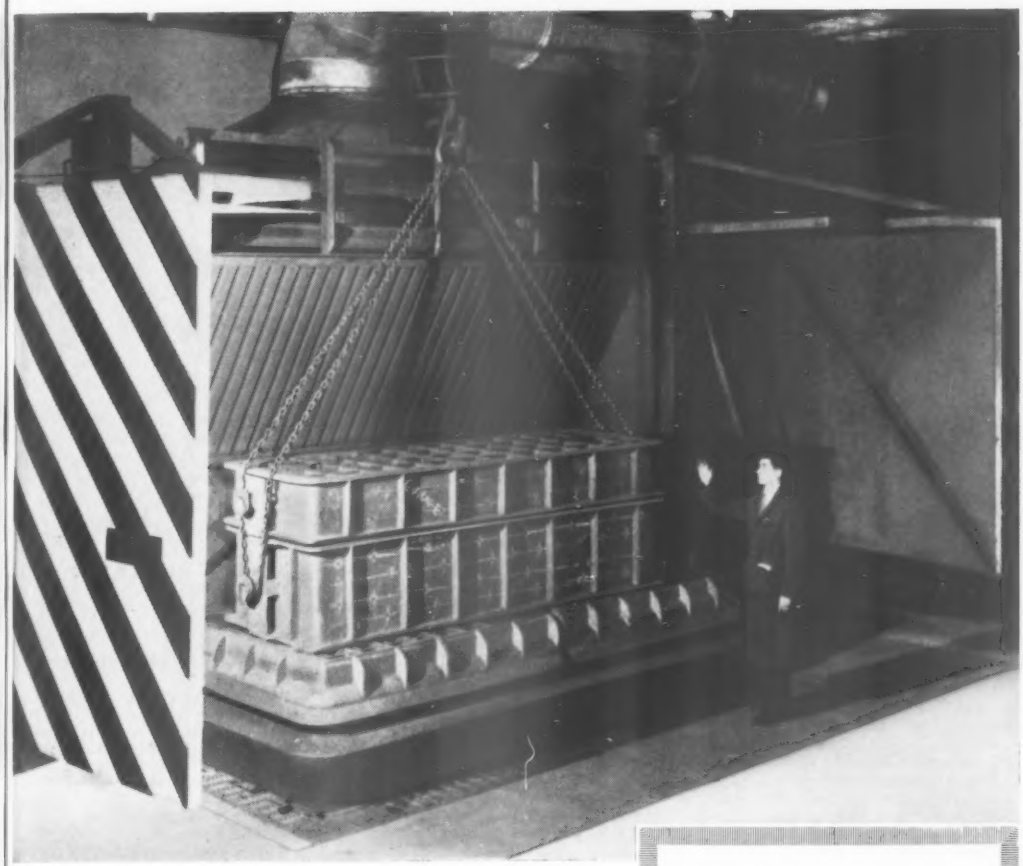
Mr. NORMAN BARLOW, for 42 years with the Carborundum Company, Limited, Trafford Park, Manchester, died suddenly at the age of 56.

The death has taken place of Mr. T. ALLAN, formerly managing director of the Leeds Brass Foundry Company, Limited, of Roper Avenue, Leeds.

The funeral took place on November 3 of Mr. ALEC GARRETT, who had been in the export department of the English Steel Corporation Limited, Sheffield, since 1950, and with the company for a total of 43 years. He was killed in a road accident.

Engaged in the foundry industry for 56 years until he retired in 1956 after 33 years as foundry manager for Smith & Grace Screw Boss Pulley Company, Limited, Midland Road, Thrapston, Northants, Mr. DOUGLAS BROOKFIELD has died at the age of 75.

While returning from work on Monday last, Mr. A. WHILES, foundry foreman with Aluminium Bronze Casting Company (Balham), Limited, Lower Morden, Surrey, collapsed and died. In his early fifties, Mr. Whiles had been with the firm for 20 years and before that with Morris Singer Company, Limited. At the time of his death and for several years previously, he was a steward of the London branch of the Institute of British Foundrymen, which he joined in 1946.



Baker Perkins Foundry Machinery at work... *at English Steel Castings Corporation Ltd.*

This shakeout unit has a working deck of 12 ft. x 5 ft. and takes a five-ton load. Under it are twin hoppers with a total capacity of 160 cu. ft. A plate feeder unit and Baker Perkins conveyor take the sand from storage at a rate of 80 tons an hour. No job is too large—or too small—for Baker Perkins—the firm with the complete range of foundry machinery.

Write today for details.

Baker Perkins Ltd. ENGINEERS

Bedewell Division, Hebburn-on-Tyne, Co. Durham

Telephone: Jarrow 897124

BP/F10

HISTORICAL NOTE

With a background of over 100 years in steel foundry practice, English Steel Castings Corporation Ltd. produces a wider variety of steel castings than any other steel foundry in the world (from a few pounds to 185 tons individual weight) and operates the most comprehensive plant in Europe.

Raw Material Markets

Iron and Steel

Current outputs of all grades of pig-iron continue to be available in adequate quantities, and most producers could increase on present deliveries if demands necessitated it. Substantial tonnages of basic pig-iron are being taken up by the steelworks, whose requirements are being satisfied fully; the continued shortage of good quality scrap compels the use of larger quantities of pig-iron in their mixtures.

All the foundry grades of pig-iron are plentiful. Consumers of low phosphorus irons are well provided with supplies from the several brands now available and any shortage in one brand can be made good in irons of equal quality and analysis from other sources. Hematite pig-iron, the demand for which has recently increased, is also in good supply, and refined irons are available to requirements.

The foundries remain content to specify only those tonnages needed for current consumption and a working stock and, in view of the recent announcement by the Iron and Steel Board that there would not be an increase in iron and steel prices on account of the higher cost of coal and coke, the policy of the foundries in not adding to stocks is likely to be unchanged so long as the present easy supply position at the furnaces remains.

Engineering and speciality foundries engaged on castings mainly for the motor-car industry continue to receive a reduced tonnage against current delivery schedules, which in some instances necessitates a shorter working week. In an endeavour to overcome this, efforts are being made by some foundries to obtain orders for castings for other consumers. Substantial tonnages of high-duty castings, however, continue to be supplied to the motor-car trade, and many other industries are maintaining their demands, which enables the foundries catering for them to obtain good outputs.

Light foundries engaged in supplying castings to the building trades are busy, but there is only a moderate call from the domestic utensil trade. These foundries have capacity to spare, and need much more work than is at present forthcoming to keep their plants fully employed. The jobbing and textile foundries are fairly well employed, but could undertake more work.

The foundries are well provided with most grades of scrap, apart from special qualities. Coke deliveries are satisfactory and ganister, limestone, and firebricks are readily obtainable.

Re-rollers are still well engaged on all their products. Good demands are maintained for small bars and light sections and there is a continued heavy call for reinforcing rods. Most of the mills have sufficient work on hand to engage their full capacity, but shortage of labour continues to impede outputs.

Adequate quantities of steel semis in the lower carbon ranges are available for their use, either from their own stocks or from current outputs at steelworks. The required tonnages of carbon and alloy steel billets are still difficult to obtain. There is a good demand from the re-rollers for steelworks' arisings of suitable re-rolling defectives and crops.

Non-ferrous Metals

The surprise settlement of the strike at Chuiqucamata over the weekend caused the copper market in London to ease perceptibly and prices at the beginning of this week dropped sharply. The strike had lasted 46 days and the loss of production is estimated at 37,000 tons. This has gone some way to offset the world's excessive production but even so, there is more copper available than can be effectively absorbed.

The outlook is, therefore, not very encouraging although buyers are keeping a close watch on prices so as to be able to take immediate advantage of any real drop in the quotation. In the US the market is only routine, although here and there, there are signs of improvement. The price of 30 cents a pound is still applicable to both producers and smelters.

Stocks in LME warehouses last week rose sharply to 11,208 tons, an increase of 553 tons over the week.

Tin has developed a pronounced weakness in London, New York, and Singapore. Reduced demand in America has brought the New York price down below $1.04 cents a pound, while the price in London has slipped back below £800 a ton. From Singapore, comes the news that tin exports in October amounted to 6,966 tons, compared with 6,234 tons in September. Exports during the first 10 months of this year now total 61,214 tons, against 36,663 tons in the comparable period a year ago.

Lead is a weak market in London and in New York, largely owing to the recession being experienced in the motor car industry. Substantial stocks overhang the market on both sides of the Atlantic. The US price is unchanged at 12 cents a pound.

Zinc, too, is a dull market. In the US no signs of improvement are looked for until the steel industry is able to raise its production. Nevertheless, the price of 13 cents a pound is considered steady, a fact which makes sense in view of the continued strike at some of the chief producing centres.

Forthcoming Events

NOVEMBER 21

Institution of Production Engineers

Sheffield graduate section: "Machine-tool Lubrication," by A. E. Annable, 7 p.m., at Samuel Fox & Company, Limited, Stocksbridge Works, near Sheffield.

Institute of British Foundrymen

East Anglian section: "Shaw Process," by N. Shaw, 7.30 p.m., at the Civic College, Grimwade Street, Ipswich.

NOVEMBER 22

Institute of British Foundrymen

Stoke-on-Trent section: "Use of Steel Castings in Engineering," by J. S. Turnbull, joint meeting with the Stoke-on-Trent Association of Engineers, 7.15 p.m., at the North Stafford Hotel.

NOVEMBER 23

National Society of Master Patternmakers

"The Shaw Process," by Clifford Shaw, 2.30 p.m., at the Charing Cross Hotel, Strand, London, W.C.2. (The meeting will be preceded by luncheon at 12.30 for 1 p.m.)

Institute of British Foundrymen

Birmingham branch "Some Economic Aspects of Foundry Melting," by J. D. Hill, 7.15 p.m., at the James Watt Memorial Institute, Great Charles Street.

NOVEMBER 24

Institution of Plant Engineers

Sheffield & district branch: "Introduction of Planned Maintenance Systems," by A. F. Stedman, 7.30 p.m., at the Grand Hotel, Sheffield.

Institute of British Foundrymen

Northampton section: "Patternmaking Progress," by B. Levy, 7.30 p.m., at the Plough Hotel.

Institute of Metals

Birmingham local section: "General Metallurgical Problems in the Motor Industry," by R. J. Brown, 6.30 p.m., at the College of Technology, Gosta Green.

NOVEMBER 25

Institute of British Foundrymen

Coventry section: Annual banquet and dance, 7 p.m., at the Hotel Leofric, Coventry.

Falkirk section: "Plastics and their Future," by W. M. Glendinning, 7.30 p.m., at the Temperance Café, Lint Riggs.

Save time and money with

Refractory Concretes

now available up to 1800°C

The advantages are

FLEXIBILITY OF DESIGN
MONOLITHIC CONSTRUCTION
LOW INSTALLATION COST
AVOIDANCE OF DELAY

WRITE FOR BOOKLETS 'SECAR 250' AND 'REFRACTORY CONCRETE'

LAFARGE ALUMINOUS CEMENT COMPANY LIMITED

73 BROOK STREET, LONDON, W.1. TELEPHONE: MAYFAIR 8546

AP94

Current Prices of Iron, Steel, and Non-ferrous Metals

(Delivered unless otherwise stated)

November 16, 1960

PIG-IRON

Foundry Iron.—No. 3 IRON, CLASS 2, 10-ton lots or over: Middlesbrough, £21 6s. 0d.; Birmingham, £20 18s. 3d.

Low-phosphorus Iron.—Over 0.10 to 0.40 per cent. P, 10-ton lots or over, £23 5s. 0d., delivered Birmingham, £23 10s. 0d., delivered Grangemouth.

Cylinder and Refined Irons.—North Zone, £25 6s. 6d.; South Zone, £25 9s. 0d.

Refined Malleable.—P, 0.10 per cent. max.; North Zone, £26 6d. 6d.; South Zone, £26 9s. 0d.

Hematite.—Si up to 2 per cent., S. & P. over 0.03 to 0.05 per cent., 10-ton lots or over; N.-E. of England (local iron), £23 19s. 0d.; Scotland (Scotch iron), Zone S.1, £24 5s. 6d.; Sheffield, £25 7s. 6d.; Birmingham, £25 14s. 0d.; Wales (Welsh iron), £23 19s. 0d.

Basic Pig-iron.—£20 3s. 0d., delivered Staffs, Derbyshire, Notts, Lincs, Rutland, Northants, and Leicestershire in 10-ton lots or over.

FERRO-ALLOYS

(per ton unless otherwise stated, delivered)

Ferro-Silicon (6-ton lots and over).—45 per cent. Si, £43 10s. 0d. to £46 0s. 0d., scale 15s. 0d. per unit, lumpy. 75 per cent. Si, £59 0s. 0d. to £63 10s. 0d., scale 15s. 0d. per unit, lumpy.

Ferro-vanadium.—50/60 per cent., 20s. 6d. per lb. of V;

Ferro-molybdenum.—65/70 per cent., carbon-free, 12s. 10d. per lb. of Mo.

Ferro-titanium.—20/25 per cent., 2-3 per cent. Cu, £250 0s. 0d.; 38/40 per cent., commercially carbon-free, £287 0s. 0d.

Ferro-tungsten.—80/85 per cent., 11s. 8d. per lb. of W.

Tungsten Metal Powder.—98/99 per cent., 14s. 8d. per lb. of W.

Ferro-chrome (6-ton lots and over, lumpy).—4/6 per cent. C, £81 10s. 0d. to £84 10s. 0d., basis 60 per cent. Cr. scale 27s. 0d. to 28s. 6d. per unit; over 6 per cent. C, £79 0s. 0d. to £82 10s. 0d., basis 60 per cent. Cr, scale, 27s. 0d. to 28s. 6d. per unit; 2 per cent. C,* 1s. 8d. to 1s. 11d. per lb. Cr; 1 per cent. C,* 1s. 8d. to 1s. 11½d. per lb. Cr; 0.15 per cent. C,* 1s. 9½d. to 2s. 0½d. per lb. Cr; 0.10 per cent. C,* 1s. 9½d. to 2s. 0½d. per lb. Cr; 0.06 per cent. C,* 1s. 11d. to 2s. 1d. per lb. Cr.

Metallic Chromium.—98/99 per cent., 6s. 10d. per lb.

Metallic Manganese.—94/96 per cent., carbon-free, £275 0s. 0d.; 96/98 per cent., £285 0s. 0d.

Ferro-columbium.—65/67 per cent., Cb + Ta, 19s. 9d. per lb., Cb + Ta.

Ferro-manganese (Standard).—78 per cent., £61 10s. 0d.

SEMI-FINISHED STEEL

Re-rolling Billets, Blooms, and Slabs.—BASIC: Soft u.t.s. 100 tons & over, £31 15s. 6d.; tested, 0.08 to 0.33 per cent. C, 6 to 35 tons, £33 15s. 6d.; hard (0.41 to 0.60 per cent. C), under 10 tons, £34 17s. 0d.; silico-manganese, under 10 tons, £43 16s. 6d.; free-cutting, under 10 tons, £36 14s. 6d. SIEMENS MARTIN ACID (under 10 tons): Up to 0.25 per cent. C, £41 1s. 0d.; silico-manganese, £44 4s. 0d.

Billets, Blooms, and Slabs for Forging and for Stamping under 10 tons).—BASIC: soft, up to 0.33 per cent. C, £38 10s. 0d.; basic, hard, over 0.41 up to 0.60 per cent. C £39 12s. 6d.; acid, up to 0.25 per cent. C, £43 4s. 0d.

FINISHED STEEL

Heavy Plates and Sections (1 ton to 10 tons).—Ship plate (N.-E. Coast), £41 12s. 0d.; boiler plates (N.-E. Coast), £44 2s. 0d.; floor plates (N.-E. Coast), £43 10s. 0d.; angles (N.-E. Coast), £38 16s. 6d.; joists (N.-E. Coast), £38 12s. 6d.

Small Bars, Sheets, etc.—Rounds and squares, under 3 in., and flats 5 in. wide and under, untested soft basic, 50 tons and over, £39 1s. 0d.; under 10 tons to 4 tons, £40 18s. 0d.; under 4 tons to 2 tons, £41 3s. 0d.; hoop and strip, coils, 100 tons and over, £38 0s. 0d.; uncoated strip mill coils, hot rolled, under 3 mm. to 12g., 25 tons to under 50 tons, £43 16s. 0d.; black sheets (hand mill), 24g., 10 tons and over, £57 14s. 6d.; galvanized corrugated sheets, 24g., 10 tons and over, £68 5s. 0d.

Alloy Steel Bars.—1 in. dia. and up: Nickel, £67 17s. 0d.; nickel-chrome, £98 11s. 0d.; nickel-chrome-molybdenum, £111 4s. 0d., in lots of 5 tons to under 10 tons.

NON-FERROUS METALS

Copper.—Cash, £226 5s. 0d. to £226 10s. 0d.; three months, £225 15s. 0d. to £226 0s. 0d.; settlement, £226 10s. 0d.

Copper, Tubes, etc.—Solid-drawn tubes, 2s. 2½d. per lb.; rods, 240s. 6d. per cwt. basis; 20 s.w.g., 275s. 0d. per cwt.

Tin.—Cash, £803 0s. 0d. to £804 0s. 0d.; three months, £799 0s. 0d. to £799 10s. 0d.; settlement, £804 0s. 0d.

Lead (Refined Pig).—Second half November, £68 2s. 6d. to £68 5s. 0d.; second half February, £68 15s. 0d. to £68 17s. 6d.

Zinc.—Second half November, £87 5s. 0d. to £87 10s. 0d.; second half February, £87 10s. 0d. to £88 15s. 0d.

Zinc Sheets, etc.—Sheets, 15g. and thicker, all English destinations, £122 10s. 0d.; rolled zinc (boiler plates), all English destinations, £120 5s. 0d.; zinc oxide (Red Seal) d/d buyers' premises, £102 10s. 0d.

Brass Tubes, etc.—Solid-drawn tubes, 1s. 10d. per lb.; sheets to 10 w.g., 199s. 6d. per cwt.; wire, 2s. 8½d.; rolled metal, 199s. 6d. per cwt.

Brass (Brazing).—BS1400, B3, £172; B6, £225.

Brass (High Tensile).—BS1400, HTB1, £192; HTB2 £211; HTB3, £229.

Gunmetal.—BS1400, LG2, £215; LG3, £225; G1, 1%, £287; G1, 1%, £277.

Phosphor Bronze.—BS1400, PB1 (AID released), £308; BS1400, 90/10/1, £295.

Leaded Phosphor Bronze.—BS1400, LPB1, £236.

Phosphor Bronze Strip, etc.—Strip, 287s. 6d. per cwt.; wire, 4s. 0¾d. per lb.; rods, 3s. 3¼d.; tubes, 3s. 3½d.; chill cast bars, solids 3s. 3¾d.; cored 3s. 4¼d (CHARLES CLIFFORD, LIMITED).

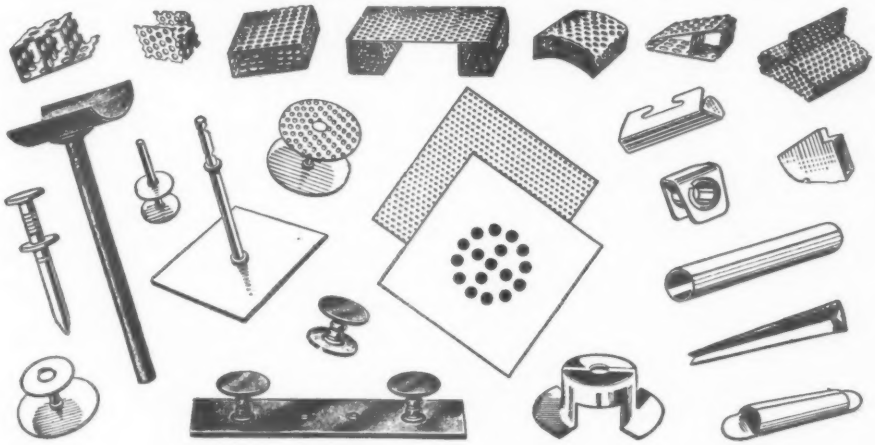
Nickel Silver, etc.—Rolled metal, 3 in. to 9 in. wide × 0.056, 3s. 10d. per lb.; round wire, 10g. in coils (10 per cent.), 4s. 3d.; special quality turning rod, 10 per cent., ½ in. dia., in straight lengths, 4s. 2d. All prices are net.

Other Metals.—Magnesium, ingots, 2s. 2½d. to 2s. 3d. per lb.; Antimony, English, 99 per cent., £200 0s. 0d. Quicksilver, ex-warehouse, £70 10s. 0d. Nickel, £600 0s. 0d. Aluminium, ingots, £186 0s. 0d.; aluminium bronze (BS1400), AB1, £243. AB2, £252

* Average 68-70 per cent.

CHAPLETS & STUDS FOR EVERY BRANCH OF FOUNDRY INDUSTRIES

WE ARE THE ORIGINAL MANUFACTURERS IN THIS COUNTRY WITH OVER 30 YEARS' EXPERIENCE



PRECISION PRESSWORK CO. LTD.

(PATENTEES)

CLIMAX WORKS, COLESHILL STREET, BIRMINGHAM 4, England

'Phone: Aston Cross 1402 Established 1874 'Grams: Precico. Phone, Birmingham

PIG IRON, All Grades

METALLIC ABRASIVES
SHOTBLASTING MACHINERY
FOUNDRY MACHINERY

WILLIAM
JACKS
AND COMPANY LIMITED

HEAD OFFICE
WINCHESTER HOUSE
OLD BROAD STREET
LONDON EC2.
LONdon Wall 4774

And at:

BIRMINGHAM 2
39 Corporation Street
Midland 3375/6

GLASGOW C2
93 Hope Street
Central 9969

FERRO SILICON 12/14%
ALLOYS & BRIQUETTES
FOUNDRY COKE
LIMESTONE
GANISTER
MOULDING SAND
REFRACTORIES

CLASSIFIED ADVERTISEMENTS

PREPAID RATES: **Twenty words for 10/- (minimum charge) and 4d. per word thereafter. Box numbers 2/6 extra per insertion (including postage of replies). Situations wanted 2d. per word throughout.**

Advertisements (accompanied by a remittance) and replies to Box Numbers should be addressed to the Advertisement Manager, Foundry Trade Journal, John Adam House, 17/19, John Adam Street, Adelphi, London, W.C.2. If received by first post Monday advertisements can normally be accommodated in the following Thursday's issue.

SITUATIONS WANTED

TO TOP MANAGEMENT—Could you use a qualified loyal Deputy to take some load off you? Advertiser (33) with wide executive experience in all aspects, technical, production and commercial, seeks position with medium sized grey or malleable firm which will eventually lead to the top. Present salary £2,100. Box TT933, FOUNDRY TRADE JOURNAL.

FOUNDRY EXECUTIVE with initiative, drive and determination, combined with first class knowledge of all ferrous and non-ferrous practices. Wide and varied experience in management, i.e. administration, estimating, costing, sales. Well able to accept responsibility and work under pressure. Box FE948, FOUNDRY TRADE JOURNAL.

CHIEF ENGINEER (40), A.M.I.PlantE., A.M.I.B.F., seeks new post. Good experience modern mechanised foundries and machine shops. Installation, maintenance, planning, development, malleable grey iron, steel. Salary £1,500—£2,000. Assistance with housing. Box CE946, FOUNDRY TRADE JOURNAL.

SITUATIONS WANTED—*contd.*

ENGINEER/FOUNDRYMAN (40) seeks position as Works Engineer/Manager. Background and experience includes highly mechanised foundries, installation development, etc. Salary £1,750—£2,000. Northern England preferred. Box EF926, FOUNDRY TRADE JOURNAL.

FOUNDRY MANAGER (and Director), aged 37, L.I.M., M.I.B.F., desires change. Experience covers all aspects of grey and high duty iron casting manufacture and customer relationship. Present salary £1,200, car and bonus. Box DA920, FOUNDRY TRADE JOURNAL.

SITUATIONS VACANT

FOUNDRY FOREMAN required for medium sized Steel Foundry in the Glasgow area. Applicants should possess a sound practical background and be conversant with the latest developments in Steel Foundry practice. Staff conditions. Pension Scheme, excellent canteen and good travelling facilities. Apply Box FR910, FOUNDRY TRADE JOURNAL.

SITUATIONS VACANT—*contd.*

DEVELOPMENT ENGINEER/DRAUGHTSMAN. An opportunity occurs for a man aged over 25 years with H.N.C. Engineering to ultimately become Chief Engineer with a well known firm of Ironfounders and Engineers in the West Midlands. Preference will be given to a man who has had similar experience or training. Write in confidence, giving full details to Box DE937, FOUNDRY TRADE JOURNAL.

NON-FERROUS FOUNDRY MANAGER OR FOREMAN REQUIRED

A VERY progressive light engineering concern in West Bromwich require the services of a skilled Foundry Manager or Foreman to take charge of their small but highly mechanised non-ferrous Foundry.

The Foundry produces small to medium size GUNMETAL castings in fairly substantial quantities.

The position is a permanent and pensionable one for the right man. The works are modern, with excellent canteen and other facilities.

Will applicants please give full details of their experience, age and salary required to: Box NF943, FOUNDRY TRADE JOURNAL.

MSL *have been retained to advise on the appointment of a*

TECHNICAL SALES EXECUTIVE

for a company which supplies to the Steel Industry oxygen, chemicals, and the process plant to use them. His work will be in applications of the latest, less established, and still developing techniques. He will:—

be the company's technical adviser to the steel industry on these developments,
deal with General Managers of U.K. steelworks,
sell plant of unit value £5,000 to £250,000,
negotiate licences to use company processes.

Essentially he must have:—

practical and technical experience of steel making,
experience of selling large-scale units,
the knowledge and interests of a practical engineer.

A degree in engineering, chemical engineering or metallurgy would be an advantage.

He must be free to travel regularly in U.K. and visit U.S.A. or Europe occasionally. Location London.

Age: 35 to 40 preferred; an older man could be considered.
Salary: the man required is probably earning about £2,500 now.
Please send brief details in confidence quoting reference GT.4700 to A. McColm.

MANAGEMENT SELECTION LIMITED
17 Stratton Street, London, W.1

In no circumstances will a candidate's identity be disclosed to our client unless he gives permission after a confidential interview at which he will be given full details of the appointment.

SITUATIONS VACANT—*contd.*

METALLURGIST required by expanding group of Iron Foundries producing automobile castings. The successful applicant will be directly responsible to the Chief Metallurgist for the efficient operation of the melting department including labour control. Practical experience preferred to academic qualifications. Housing accommodation is available in New Town situated in pleasant county of Monmouthshire. Please apply, giving age, experience and salary required, to GUEST KEEN & NETTLEFOLDS (CWMBRAN) LIMITED, Cwmbran, Mon.

TECHNICAL ENGINEER for Lancashire and Yorkshire required by well-known established British manufacturer of moulding machines, sand plant, cleaning equipment, cupola plant, etc. Applications invited from men having the practical knowledge necessary for the satisfactory sale and servicing of such equipment. Write giving details of experience and salary required to Box TE939, FOUNDRY TRADE JOURNAL.

FOUNDRY MANAGER

required for a well known Engineering Iron Foundry producing light, medium and heavy castings. Applicants should be men familiar with modern production methods and capable of efficient administration.

Assistance with housing can be given.

Write in confidence giving full particulars including salary expected.

Box FM940 Foundry Trade Journal.

SITUATIONS VACANT—*contd.*

FOUNDRY FOREMAN required for Iron Foundry in Hertfordshire. Practical man with experience in high-quality castings produced by machine, plate and floor methods up to 2 tons individual weight. Box FR930, FOUNDRY TRADE JOURNAL.

METALLURGICAL ASSISTANT

YOUNG man, preferably with experience of Metallographic and Spectrographic work, for our laboratories. Educational standard to G.C.E. standard in Maths., Physics and Chemistry, and to O.N.C. or H.N.C. in Metallurgy. Staff position, five-day week, good opportunity for suitable applicant to broaden his experience. Apply by letter in confidence, stating age, experience, etc., to PERSONNEL OFFICER, West Yorkshire Foundries, Ltd., Sayner Lane, Leeds, 10.

ENGINEERING AND IRON FOUNDRY BUSINESS, 400 employees, has new opening for experienced young ENGINEER with potential to develop in the fields of Output, Wages, Relationship and Methods Study, later progressing to higher administration. Tyneside area; five-day week; commencing salary about £1,000 according to ability; non-contributory Pension Scheme. Apply own handwriting to Box EI945, FOUNDRY TRADE JOURNAL.

FOUNDRY FOREMAN required for small well equipped Iron Foundry, light to medium, CO_2 and green sand, sole charge, South Coast. Housing assistance. Pension Scheme. Write in confidence; interview expenses. Box FF917, FOUNDRY TRADE JOURNAL.

MACHINERY WANTED

CORE BLOWER wanted, suitable for blowing cores overall dimensions 12 in. × 11 in. × 2½ in. Also "Jolt Squeeze" Moulding Machine. Particulars to Box CB941, FOUNDRY TRADE JOURNAL.

MACHINERY WANTED—*contd.*

HANSBERG CORE SHOOTER, or similar, capable of shooting cores 45 lbs. min. capacity. Quote specification and price. Box HC938, FOUNDRY TRADE JOURNAL.

ACME CORE STOVE WANTED URGENTLY

Vertical conveyor—type core stove single, two, or three loop type.

Must be in reasonable condition—purchaser will dismantle and remove from site.

Large foundry organisation require this stove for an urgent project.

Would also consider purchasing a complete set of conveyor chains, trays, sprockets, etc., for this type of stove.

Send details and location to:

BOX AC947

MACHINERY FOR SALE

BRAYSHAW Gas Fired Bale Out Furnace, complete in all respects including instrumentation.

G.E.C. Batch Type Horizontal Tempering Furnace with roller track. Complete in all respects.

WHITEFIELD MACHINERY & PLANT, LIMITED, 48, Chatham Street, Edgeley, Stockport, Cheshire.

McNAB shockless, jolt-ram Rollover Moulding Machine, table size 40 in. × 30 in., complete with pneumatic clamps.

3 ton capacity belt take off Hopper Unit, first class condition.

3 ton enclosed geared Ladle.

50 cwt. oil bath geared Ladle, first class condition.

Roper 10 cwt. Racking Hoist, complete with 3 cwt. dipping covered Ladle.

B.M.M. A.T.O. Rollover Moulding Machine.

LAWFORD PLANT & MACHINERY, LTD. Manningtree 365.

PRODUCTION MANAGER

Required for small Birmingham firm engaged in light engineering based on jobbing non-ferrous foundry. Hard work. Good prospects. For further particulars apply to Birmingham Productivity Association Technical Advisory Service Limited, 75, Harborne Road, Edgbaston, Birmingham. 15. Telephone EDGbaston, 5778 & 5779, quoting reference, 1514/PM

R. B. TENNENT, LIMITED, COATBRIDGE.

One of the foremost producers in Europe of Steel-works rolls, require:—

(a) Two Steel Foundry Foremen. Experience in roll-making is desirable but not necessary.

(b) Several Junior Chemists and/or Metallurgists with Ordinary or Higher National Certificates.

(c) One Instrument Mechanic preferably experienced in gas and electric furnace control gear.

The expansion programme of this long-established progressive company offers excellent prospects.

Portable Electric Sieve.

Four British Moulding Machines. A.T.4

Morris Screenerator.

Coleman Wallwork, jolt squeeze, pin lift, Moulding Machine.

MacNab jolt squeeze Moulding Machine.

New plain jolter—small size.

New and unused drawer type core ovens, by Alldays & Onions, oil fired.

New Bale-out and Lift-out Furnace. Leaflet and photograph available.

New Polford 600 lb. capacity coke-fired furnace.

Morgan 600 lb. capacity coke-fired tilting furnace.

ELECTROGENERATORS LTD.,

Australia Road, Slough, Bucks

Telephone: Slough 22877 & 22094

MACHINERY FOR SALE—*contd.*

VITREOUS ENAMELLING PLANT

TWO MUFFLE HANGING FURNACES, Incandescent Heat Co. Oil converted to gas fired. 14 ft. 6 in. × 5 ft. 7 in. deep × 2 ft. 10 in. wide overall. Complete with chargers, adjacent self-heated drying chambers, recording and controlling equipment.
MUFFLE FLAT FIRING FURNACE. Incandescent Heat Co. Gas fired. 7 ft. 6 in. × 3 ft. 6 in. wide × 2 ft. 9 in. deep overall. Complete with charger, recording and controlling equipment.
PEBBLE MILLS. Steele and Cowlishaw. One each 5 cwt., 200 lb., 63 lb. Four 143 lb.
DOUBLE JAR MILL, 61 lb. each.
Tilghman ROOM SHOTBLAST. Hand rotated table 6 ft. dia. with 4 ft. high division. Room 7 ft. sq. × 8 ft. high. Cyclone.
Tilghman WHEELABRATOR with Steel Conveyor, 3 ft. 3 in. × 3 ft. dia., 4 speeds and reverse.
Tilghman SHOTBLAST BARREL converted to cabinet, 2 ft. 6 in. × 1 ft. 11 in. floor. Cyclone.
Tilghman D.A.6 DUST ARRESTER with Blowback Screen and Fan.
Jackman CABINET SHOTBLAST, 3 ft. 3 in. × 2 ft. 6 in. floor. Combined Dust Unit.
Olympia MOTORISED SIFTER, 1 ft. dia.

ENTWISLE AND KENYON, LTD.
Accrington, Lancs. Tel. 32631.

TWW

AIRLESS Rotary Barrel Shot Blast Machine (Sand Wizard) by Constructional Engineering Co., size 44 in. × 40 in., complete with Elevators, Dust Extraction Plant, etc., arranged for 400/440/3/50 cycles.
B.M.M. Jolt Squeeze Turnover Moulding Machine, type RDO.
Coleman Wallwork WT562C Jolt Squeeze Turnover Draw Moulding Machine.
Coleman Wallwork WT563C Jolt Squeeze Turnover Draw Moulding Machine.
Brayshaw Gas Fired Muffle Furnace, 40 in. × 30 in. × 18 in., with Blower, unbricked.
Sirocco 30 in. dia. Cupola Blower.
Richards Sandmaster Portable Electric Sand Conditioning Machine.
10/12 cwt. Roper Hand Geared Crane Ladle, Oil Bath Gearing.
15 cwt. Roper Hand Geared Crane Ladle, Oil Bath Gearing.
Pneulec Sand Royer No. 1, 400/440/3/50.
Wide range of Air Compressors always in Stock.
Inspection:—Thames Road, Silvertown, London, E.16.

THOS. W. WARD LTD.
BRETTENHAM HOUSE, STRAND, LONDON, W.C.2.
'Phone TEMple Bar 1515 (12 lines.)

Roper
LADLES
STOCK UP TO 5TON CAP.
E. A. ROPER & CO. LTD.
KEIGHLEY • Phone; 4215-6

ONE "Monometer" 1,000-lbs. (brass) capacity Central Axis Tilting Furnace. Very little used and equal to new. Box OM916, FOUNDRY TRADE JOURNAL.

TWO CUPOLA FURNACES

NO. 4 Roper economic Cupola with spark arrestor. 3—3½ tons grey iron per hour. Overall height 41 ft.; 3 ft. 6 in. outside diameter; 2 ft. diameter inside lining at tuyeres. 1948, very good condition.
Second Furnace with spark arrestor. Overall height 42 ft.; 4 ft. 6 in. outside diameter chimney; 2 ft. 4 in. inside lining at tuyeres. Fair condition.

ENTWISLE & KENYON, LTD
Accrington, Lancs.
Tel. 32631.

TITAN CORE BLOWERS, 75-lb. cap. CORE EXTRUDER, bench type table, 17 in. × 14 in.
CUPOLETTES: 2 ft. 6 in. and 3 ft. 6 in. dia.
FURNACES:
Morgan CA, 15-cwt. Tilting.
Lees-Hall CA, 600 lbs.
Gas and Oil-fired Bale-out, 150 lbs. and 300 lbs. cap.
FOUNDRY LADLES: Geared and ungeared, various sizes.
MOULDING MACHINES: Various makes.
SAND MILLS, SAND MIXERS, DISINTEGRATORS, and ALL types of Foundry Plant and Machinery.
Send your enquiries:—

S. C. BILSBY & CO.,
Hainge Road, Tividale, Tipton, Staffs.
'Phone: Tipton 2448.

PNEULEC ROYER No. 2.
Two Swing Frame Grinders.
Jackman 601 and 602 Moulding Machines.
2 cwt. Geared Ladle.
Large quantity of Moulding Boxes.
Roper 5 cwt. Ladle Hoist.
Several Fans and Blowers.

Box PR942.
FOUNDRY TRADE JOURNAL.

SHOTBLAST MACHINES

All sizes. Rooms or Cabinets. Ex stock or prompt delivery. Low prices.

Try us for
Spare parts & tungsten carbide nozzles.

Fully illustrated Catalogue free on request

Actual Manufacturers:
ELECTROGENERATORS LTD.
AUSTRALIA ROAD, SLOUGH
Telephone: SLOUGH 22877
35 years of satisfactory service

MATERIALS WANTED

JOBBING FOUNDRY
capacity immediately required for cast iron up to ½ ton weight.
Apply the:
Churchill Machine Tool Co. Ltd., Broadheath, Manchester.

MATERIALS WANTED—*contd.*

SUPPLIES of Steel Ring Handled Ladles wanted. 4 in. up to 102 with 30 in.—36 in. Handles. Box SO944, FOUNDRY TRADE JOURNAL.

WANTED

SCRAP ELECTRODE CARBONS
GRAPHITE-OFFCUTS

details of tonnages and samples to

FINE GRINDING LTD
Blackhole Mine, Eyam, Derbys.
Phone: Eyam 227

WANTED URGENTLY

Discarded Sacks, Slag Bags, Old Sacking.

For good prices and prompt settlement sell to actual users.

JOHN COTTON
(JUTE) LTD.
NUNBROOK MILLS
MIRFIELD • YORKSHIRE
Tel: Mirfield 3306-7

MATERIALS FOR SALE

HORSE MANURE for Foundry use. Consistent high quality at competitive terms. Testimonials available. Delivery from unlimited stocks. GINISTER BROS., Walsall, 27367.

---

pulverite

COAL DUST

lowest in ash

The STANDARD PULVERISED FUEL Co. Ltd

Head Office
47 VICTORIA STREET, WESTMINSTER
LONDON, S.W.1 TEL: ABBey 6255/6

MATERIALS FOR SALE—*contd.*

STAINLESS STEEL

Ingots for Sand Casting

Sticks for Investment Casting

SPARTAN STEEL & ALLOYS LTD.
Spartan Works, Aston.
Birmingham, 6.

CAPACITY WANTED

CAPACITY in Scotland required for continuous production small iron castings (2—12 lbs.), mainly in 3/16-in. to ½-in. sections. Box CI929, FOUNDRY TRADE JOURNAL.

CAPACITY AVAILABLE

CASTINGS.—We can save your porous castings, ferrous or non-ferrous, by an approved impregnation process; sample castings treated. A.I.D. approved.—RECUPERO, LTD., 66, South Harrow Viaduct, Harrow, Middlesex. 'Phone: Byron 1178.

CALCIUM SILICIDE. Finely ground Calcium Silicide—for nodular iron exothermic compositions, etc. (now being successfully used by several foundries) at prices which save you money. TOXANE LIMITED, 47 High Street, Edgware, Middlesex. EDGware 6666.

VITREOUS ENAMELLING.—Capacity available for enamelling castings in all finishes (plain, mottle, marble, lustre, etc.). Prompt delivery by our own transport. THE RUSTLESS IRON CO., LTD., Trico Works, Keighley, Yorks. Tel.: Keighley 3737.

CAPACITY available for repetition grey iron castings, in weights from ounces to 28 lbs. Metal grade 12. Cored work a speciality. All enquiries invited. Prompt replies. WM. WHITEHOUSE & SONS (HALESOWEN), LTD., Eagle Foundry, Stourbridge Road, Halesowen.

CAPACITY AVAILABLE—*contd.*

HEAT TREATMENT of Iron and Steel. Annealing, Normalising, Stress Relieving and Shotblasting. Prompt delivery by our own transport. THE RUSTLESS IRON CO., LTD., Trico Works, Keighley. Tel. Keighley 3737.

CAPACITY available for Iron and Steel Castings, Sand and Shell Moulding, pattern making capacity. Enquiries invited: KNETE CASTINGS, LTD., Station Road, West Horndon, Essex.

MISCELLANEOUS

GUARANTEED SHEFFIELD FILES. New condition. Most sizes available including 12 in. bastard flat at 2s. 6d. Send for price list. FILE REGENERATION, LTD., Bridge Road, Haywards Heath, Sussex.

PATENTS

BRIT. PATENT No. 830,042—Improvements to shot blasting impellers air assisted or gravity fed, for exploitation on mutual terms. Principals only. JACK KINSMAN. Poste Restante, Montmedy, Meuse, France.

"BLU-SKY" PATENT RIGHTS FOR SALE

Manufacturer, willing to negotiate either the selling rights, or licence to manufacture the following:—

Open fire to supply central heating and domestic requirements.

Designed to fit existing fire surrounds, complete with fixed fireguard, both covered by patent rights.

Boiler and firewell cast in one piece silicon alloy, also skirting and panel radiators for small bore central heating.

Write initially to:—

Boyes Bros.
Maze Street Works, Darcy Lever,
BOLTON
Tel. No.: Bolton 3469.

PATTERNMAKERS

PATTERNS for all branches of Engineering for Hand and Machine Moulding.—FURNESTON & LAWLOR, LTD. Letchworth.

PATTERNMAKERS—*contd.*

HENRY CLUETT & CO., LTD.—Patterns of all types in Wood, Metal and Epoxy Resin. Quotations by return. Quick delivery. Furlong Road, Tunstall, Stoke-on-Trent. Tel. 87822.

FOR successful castings from your plant. Pressurecast matchplates, precision wood or metal pattern equipment can be purchased quickly, competitively, from BOOTH BROS. ENGINEERING, Baggrave Street, Leicester. Tel. 67020.

Tel. Office 2702 Works 5709

NORTHGATE PATTERNMAKING CO. LTD.

★

Manufacturers of Engineering Patterns and Models

★

Quebec St., Darlington

PATTERNMAKING
LARGE CAPACITY AVAILABLE
IN ALL BRANCHES OF THE TRADE
MARSDEN HIND & SON LTD.
GUIDE BRIDGE WORKS,
JOHN ST., ASTON-U-LYNE
EST 1929 TEL: ASH 2426

PATTERNMAKERS
(Engineering) CO. LTD.
Shrewsbury Road, London, N.W.10
PATTERNS
CASTINGS
Phone: ELGAR 8031/2

Wm. REID & Co.
PATTERNMAKERS
full facilities available for precision patternmaking for hand and machine moulding. Keen Prices—Prompt Delivery.
Phone SOUth 0075 or write:— **Wm. REID & Co., Cardwell Street, Glasgow, C.5**

THOMSON & MACINTYRE (PATTERN MAKERS) LIMITED
925-927 ARGYLE STREET, GLASGOW, C.3
WE SUPPLY PRECISION WOOD AND METAL PATTERNS
☆ *Now under New Management. Write or phone Central 4823* ☆
SCOTLAND'S MOST MODERN PATTERN SHOP ESTABLISHED FOR OVER 50 YEARS

STANSBY for PRECISION PATTERNS

Established over half a century

W. STANSBY & CO. LIMITED

DRYAD STREET, PUTNEY, LONDON. S.W. 15 PHONE:- PUTNEY 1571

LEADING LONDON PATTERN MAKERS

R.J. FRANKISS (PATTERNS) LTD.

SPECIALISTS IN WOOD, METAL, EPOXY RESIN

PHONE: PRO 5140

MARKET ROAD, RICHMOND, SURREY.

BLACK SEAM AND HISEGAR REFRACTORIES

Linings, Patchings, Cements, Ground Fireclay, Firebricks, Foundry Sands and Compo.

MIDLAND MONOLITHIC FURNACE LINING COMPANY LIMITED

GOOSE LANE, BARWELL, LEICESTER

BLACK SEAM

preheated downdraught

CRUCIBLE FURNACES

Coke, Oil or Gas Fired

Free demonstrations at your works

Tel. Earl Shelton 2061/2 (2 lines)

PATTERN SHOP SUPPLIES

ALL BRITISH

JOHN BURN & CO. (B'HAM) LTD.

5 HENSHAW ROAD, SMALL HEATH, BIRMINGHAM 10

Phone: VICTORIA 0137 ESTD. 1904 Grams: REQUISITES B'HAM

WOOD — RESIN — METAL

PATTERN MAKERS

PLATE OR LOOSE PATTERNS, MODELS, ETC.

Good accurate work at competitive prices and prompt delivery. Under personal supervision.

J. H. MAY LTD.

117, CENTRAL STREET, LONDON, E.C.1

CLErkenwell 5085 & 3509

Branch Works: CROWN WHARF, DACE ROAD, OLD FORD, E.3 AMHerst 3411

B. LEVY & COMPANY (PATTERNS) LIMITED

MANUFACTURE BOTH WOODEN AND METAL PATTERN EQUIPMENT FROM THE SMALLEST AND MOST INTRICATE, UP TO THE VERY LARGEST AND HEAVIEST TYPES

First class workmanship by modern methods and plant enable us to offer reliable, prompt and competitive service

SEND YOUR ENQUIRIES, LARGE OR SMALL TO:
B. LEVY & CO. (PATTERNS) LTD., 1-5 OSBERT STREET, LONDON, S.W.1
TELEPHONE : VICTORIA 1073 or 7496

WATSONS

(METALLURGISTS) LTD.

Ferro Alloy Powders,

All meshes, for Inoculations, Coatings, Spraying and Dusting. All Foundry Metals and Supplies for Steel or Iron. Refractories and Reagents.

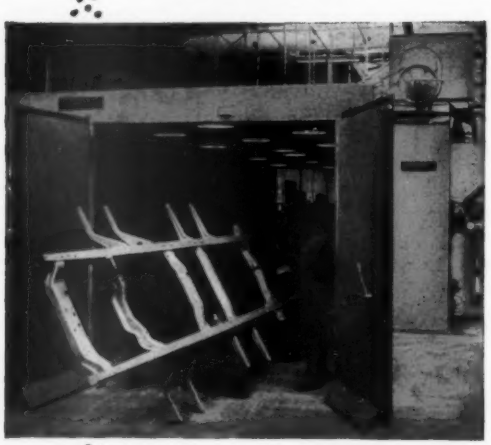
All grades of Ferro Alloys

PULVOMETAL WORKS, MILL LANE, DRONFIELD NEAR SHEFFIELD

Telephones : 3136-3137 Dronfield *Telegrams : Cargo, Dronfield*

St. Georges

SHOT BLAST ROOMS



We make all types of wheel or compressed air plants

over 50 years' experience embodied in design and manufacture

St. Georges Engineers Ltd

Ordsall Lane Trafford Bridge Manchester 5

Telephone: Trafford Park 1207 (4 lines) Telegrams: "Georgic" Manchester 5

Z

CUT COSTS of foundry fettling with Zircosil

ZIRCON SAND AND FLOUR

ASSOCIATED LEAD

MANUFACTURERS LTD.

ZIRCOSIL

ZIRCON DIVISION, CRESCENT HOUSE, NEWCASTLE UPON TYNE, 1.

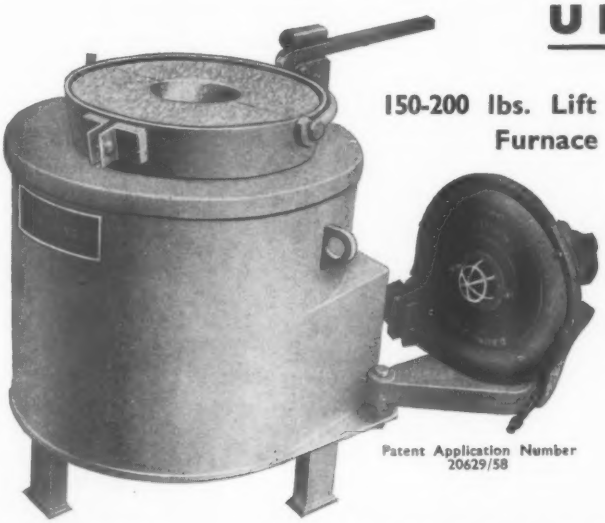
BILSTON Rolled Steel MOULDING BOXES

Interchangeable · Accurately jigged and reamed. Withstand rough handling. Long life without distortion. Sizes and shapes to requirements.

BILSTON STOVE & STEEL TRUCK CO. LIMITED
BILSTON • Phone: BILSTON 41921 • STAFFS

• *Agents for Southern England*
FOUNDRY SUPPLIERS LIMITED.
25A, Cockspur St., London, S.W.1 *'Phone: TRAfalgar 1141*

UNIT



Patent Application Number 20629/58

150-200 lbs. Lift Out Crucible Type Furnace (Oil Fired)

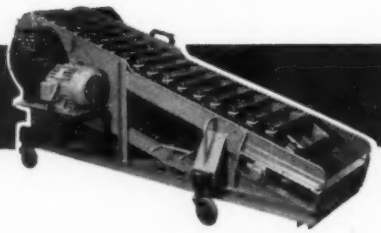
- ★ UNIT CONSTRUCTION
- ★ ROBUST DESIGN
- ★ LOW INSTALLATION COST
- ★ LOW MAINTENANCE COST
- ★ ECONOMICAL

The Furnace is one of a range of three :—
60 lbs. to 80 lbs.
100 lbs. to 120 lbs.
150 lbs. to 200 lbs.

UNIT ENGINEERING CO.
EGMONT STREET, MOSSLEY, MANCHESTER

SHEPPARD

Casting Machines



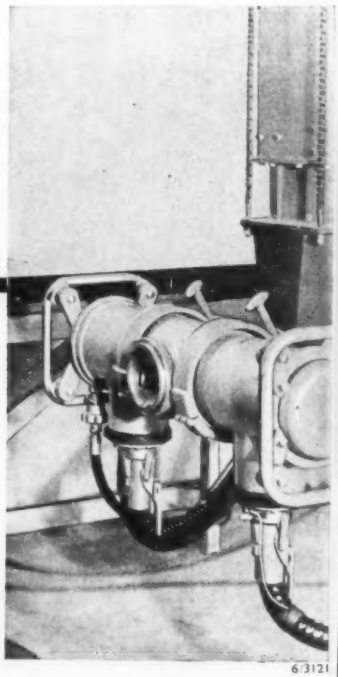
Over 150 Sheppard Ingot Casting Machine installations are in operation throughout the world, with a wide range of capacities from ½ ton per cast to 100 tons per hour.

SHEPPARD'S of Bridgend

SHEPPARD & SONS LTD · BRIDGEND · GLAMORGAN · Tel: Bridgend 3201

LONDON OFFICE: SADDLERS HALL · GUTTER LANE E.C.2. · Tel: Monarch 7351

A COMPLETE NON-DESTRUCTIVE TEST SERVICE



X-Ray and Gamma-Ray service (Test House and Mobile) * Magnetic crack testing * Fluorescent crack testing * Ultra-sonic testing * Pressure testing — air and hydraulic * Low temperature testing * Film processing and radiological reports

Palmer NON-DESTRUCTIVE TEST SERVICE

Palmer Aero Products Ltd

AERO PRODUCTS DIVISION · BTR INDUSTRIES LIMITED
PENFOLD STREET, LONDON N.W.8 TEL. PADDINGTON 8822

6/3121

Low Phosphorus

and

Sulphur contents

used for

High duty castings,

Cylinders,

Piston Rings,

Rolls, etc., and in

Open-Hearth and

Electric Steel Making

NORWEGIAN

ALL-MINE ELECTRIC

PIG IRON

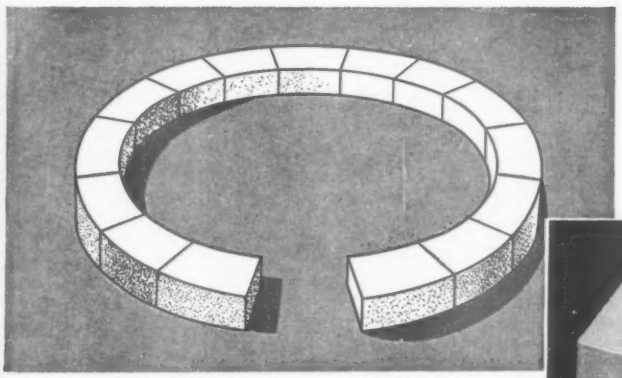
CONTAINING VANADIUM & TITANIUM

Bremanger Vanitk

APPLY TO:

DUNFORD & ELLIOTT (SHEFFIELD) LTD · Attercliffe Wharf Works, Sheffield, 9.
Telephone Nos. 41121 (5 lines). Telegrams: Blooms, Sheffield, 9

Found only in the best circles



Pearson circle bricks are specially devised so that an exact number gives a specific ring diameter. For example 16 would give a 4½ inch lining of 36 inch inside diameter *with no weak joints.*

There are two qualities: "Plumb" and Alite D — PEER M Cement is recommended as a jointing material.

EJ&JP

PEARSON CIRCLE BRICKS manufactured by modern machine pressing methods have the accuracy of shape and dense texture required for successful cupola work.

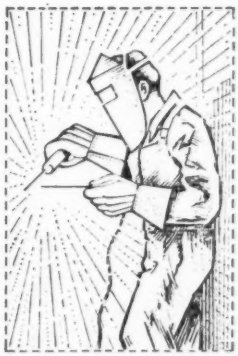
E. J. & J. PEARSON LTD., STOURBRIDGE. Telephone: Brierley Hill 77201

Footmen are aloof to Bennett's gloves—

but they're vital for jobs

'on hand'

A wide range of quality industrial Gloves, Mitts, Aprons and Clothing in leather, rubber, asbestos, plastic and various fabric materials are made and stocked for all trades and processes. Technical Representatives are available for consultation in all parts of the British Isles at short notice.



BENNETT'S

INDUSTRIAL GLOVES

H. G. BENNETT & CO. (Gloves) LTD. · Industrial Glove Specialists · LIVERPOOL 23 · GREat Crosby 3996/7

CVS-16

ESCO

GUNMETAL AND PHOSPHOR BRONZE INGOTS CONFORM TO B.S.I. SPECIFICATIONS

Test Certificates available for every batch

★ Also manufacturers of Ariel & Esco Chill Cast Phosphor Bronze Rods & Tandem White Metals

THE **EYRE** SMELTING CO. LTD.

Tandem Works, Merton Abbey, S.W.19 · Telephone: MITCHAM 2031
ALUMINIUM WORKS · WILLOW LANE · MITCHAM · SURREY

PATTERN CRAFTS

can supply patterns for the Engineering, Motor and Allied Trades in

Personal attention assures FIRST CLASS WORKMANSHIP and GOOD DELIVERY

A Member of the Triplex Foundries Group

SEND OR PHONE YOUR ENQUIRIES TO

PATTERNCRAFTS LTD.

UPPER CHURCH LANE, TIPTON, STAFFS.

Phone: Tipton Staffs 1567

PHILLIPS' for FILLETS!

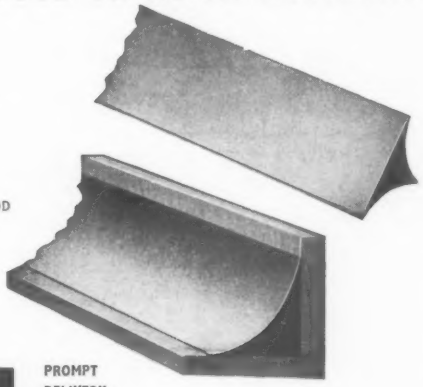
FOR WOOD OR METAL PATTERNS

● "PLASTIFIL" PATENT WAX FILLET
PATENT Nos. 508848 AND 666081

● "POLYFIL" PATENT PLASTIC FILLET FOR METAL OR WOOD PATTERNS
PATENT 731741

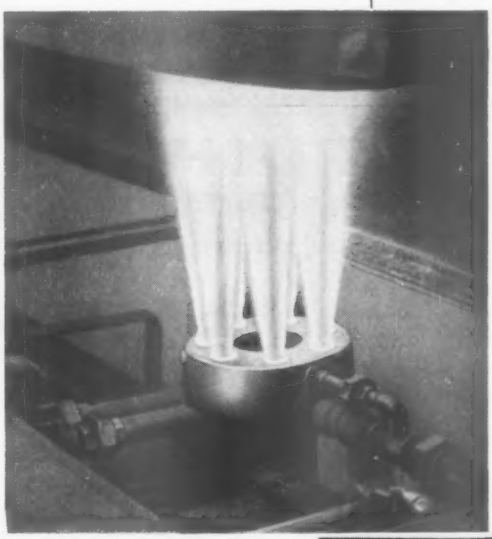
● "PLIGNUM" PLASTIC WOOD
(REGISTERED TRADE MARKS)

LEATHER FILLET WOOD FILLET



PROMPT DELIVERY

J.W.& C.J. PHILLIPS LTD.
POMEROY ST., NEW CROSS, LONDON, S.E.14.



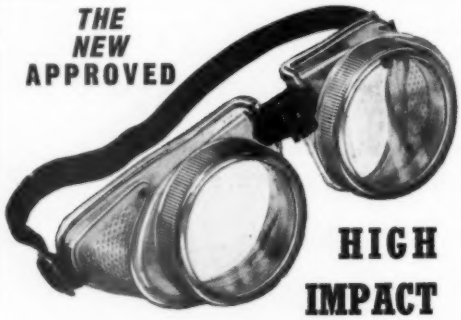
HIGH EFFICIENCY *'TARGET'*
—Gas Burners for all purposes

Many new gas burners applications are possible by the introduction of "Target" gas burners. In this system, air and gas are intimately mixed producing pencil flames of high intensity which require no additional air for combustion. It is therefore suitable for use in the open or in closed combustion spaces. The velocity of the mixture issuing from the jets promotes turbulence and high rates of heat transfer. The burner consists of multiple jets which can be arranged to suit any flame pattern.

Write for Bulletin GB.1

DOWSON & MASON LTD
ALMA WORKS LEVENSHULME MANCHESTER
Telephone: HEATON MOOR 2151 (5 lines) Telegrams: Gasify, Manchester 19
UGI GROUP

THE NEW APPROVED



HIGH IMPACT

FOUNDRY GOGGLE

These goggles have been specially designed and tested in accordance with the findings of the Foundry Goggles Joint Advisory Commitee, and are recommended for use by all Foundry Workers.

Withstands High Velocity Impact of 390 ft. per sec.

CHAPMAN & SMITH LTD

Holders Hill Circus · London N.W.7

Telephone: FINchley 6244

Sole Agents for Scotland:
L. A. WITHAM & CO., 50 VINE STREET, GLASGOW, W.1

CONTACT THE SPECIALISTS FOR

CHEMPRODUX

BENTONITES

SODIUM-BASED AND CALCIUM-BASED

REDUCE YOUR COSTINGS • IMPROVE YOUR CASTINGS

Excel in quality and consistency
Keen prices backed by willing and efficient service
Good stocks held

You should enquire now for full details and quotations from :—

PRODUCTION CHEMICALS (Rochdale) LTD.

Victoria Buildings, 32 Deansgate, Manchester 3

Telephone : Blackfriars 3396 & 3851
Telegrams/Cables : Chemprodux, Manchester
INT. TELEX : 66-330

COKE

FOR ALL PURPOSES

CAWOOD WHARTON & CO. LTD.

"SOUTHLANDS" HARROGATE. Tel. Harrogate 6868.

ST. MARTIN'S HOUSE, LONDON, S.E.18 Tel. Woolwich 5232.

HARGRAVES BROS.

(MANCHESTER) LTD.

31, QUAY STREET, MANCHESTER, 3.

BRUSHES

HAIR — FIBRE — WIRE

'PHONE BLACKFRIARS 9510

FOR ALL FOUNDRY SUPPLIES

Scotland's Foundry Suppliers

L. A. WITHAM & CO.

"Lawco" Foundry & Engineers Supplies

50-52 VINE STREET, GLASGOW, W.1
PHONE: WEST 2477

ALL FOUNDRY & ENGINEERS REQUIREMENTS — EX-STOCK

Also Specialists in Protective Clothing, Visors, Goggles, Gloves, Eye Shields, Moulders' Safety Boots, Stick-on Plastic Pattern Letters, etc.

ALL EX-STOCK

Suppliers to Technical Colleges, Schools and Education Authorities throughout Scotland.

Agents and Stockists of F. & M. SUPPLIES LTD.

DIAMOND SUPER-RAPID CRUCIBLES

Special glazing

T.S. WILSON & CO. (GRAPHITE) LTD.

16 PHILPOT LANE, LONDON E.C.3

Tel. MAN 8138/9

Works: EUREKA MILLS, ALBION PARADE, GRAVESEND, KENT.

When you can't see for dust — see ...

DUSTRACTION

Specialists in dust and fume control
and pneumatic conveying

DUSTRACTION LTD, 94 REGENT ROAD · LEICESTER · Tel: GRANBY 2681/2

DRYING STOVES

on the

"ADELPHI" FORCED DRAUGHT SYSTEM

(Using low-grade fuels)

or with

MECHANICAL STOKERS

●

COMPLETE INSTALLATIONS WITH OR WITHOUT RECIRCULATION

STOVE CARRIAGES
PORTABLE MOULD DRIERS
FURNACES FOR ALL PURPOSES

●

MUIR, MURRAY & CO. LTD.,

FURNACE BUILDERS

TELEPHONE: 2004 **ADELPHI WORKS**
TELEGRAMS: "MURITE, PAISLEY," **PAISLEY.**

Woking Pattern Works

IMMEDIATE CAPACITY AVAILABLE

Prompt attention and high degree of accuracy are assured by ordering your pattern equipment from us. In wood or metal. We are glad to co-operate with foundry techniques. Quotations sent by return of post.

MARLBOROUGH ROAD, WOKING, SURREY
TEL: WOKING 118

Metal treatment

and Drop Forging

A monthly journal devoted to the properties, uses, testing and treatment of special steels and light alloys, and to forging technique in all its branches. 2/6d. per copy, 30/- yearly.

●

Write for a specimen copy to :

Metal Treatment and Drop Forging

John Adam House, 17/19, John Adam St., London, W.C.2

SWEDISH REMELTING IRON

Distributed Exclusively in the U.K. by the sole agents of NORRBOTTENS JÄRNVERK AB.

Prompt from local stocks

C	0·02% max.	also C	0·01% max.
Si	Nil	Si	Nil
Mn	0·15% max.	Mn	0·15% max.
P	0·03% max.	P	0·02% max.
S	0·03% max.	S	0·02% max.

otherwise commercially free from impurities.

LEOPOLD LAZARUS LTD

CITY WALL HOUSE, 79-83 CHISWELL ST.,
FINSBURY SQUARE, LONDON, E.C.1

Telephone : MOOrgate 5688 Telex: 28872

INDEX TO ADVERTISERS

PAGE NOS.

A.E.I.-Birlec, Ltd. — Air Control Installations Ltd. — Albion Diemakers, Ltd. — Alcan (U.K.), Ltd. — Allan, John, & Co. (Glenpark), Ltd. — Allen, W. G., & Sons (Tipton), Ltd. — Amafond — Amber Oils, Ltd. — Anderson-Grice Co., Ltd. — Annealers, Ltd. — Armstrong Whitworth (M.I.), Ltd. — Armstrong Whitworth & Co. (Pneu. Tools), Ltd. — Ashworth Ross Co., Ltd. — Aske, Wm., & Co., Ltd. — Ass. Lead Mfrs., Ltd. 52 Atlas Copco (G.B.), Ltd. 10 August's, Ltd. 44 Austin, E., & Sons, Ltd. —

Badische Maschinenfabrik A.-G. 16 Bairds & Scottish Steel, Ltd. — Baker Perkins, Ltd. 653 Balbardie, Ltd. — Ballard, F. J., & Co., Ltd. — Ballinger, L. J. H., Ltd. — Beck, H., & Son, Ltd. — Belliss & Morcom, Ltd. — Bennett, H. G., & Co. (Gloves), Ltd. 56 Berk, F. W., & Co., Ltd. — Bilston Shot & Grit Co., Ltd. — Bilston Stove & Steel Truck Co., Ltd. 53 Birkett, F. W., & Co., Ltd. — Birlec-Efco (Melting), Ltd. — Blackwell's Metallurgical Works, Ltd. — Block & Anderson, Ltd. — Bloomer-Holt, Ltd. — Boydell, E., & Co., Ltd. — Bradbury, John, & Co. (Stockport), Ltd. — Bradley & Foster, Ltd. 9 British Acheson Electrodes, Ltd. — British Aero Components Ltd. — British Electrical Repairs, Ltd. — British Foundry Units, Ltd. 27 British Industrial Sand Ltd. — British Iron & Steel Federation — British MonoRail, Ltd. — British Moulding Machine Co., Ltd. 14 & 15 British Oxygen Co., Ltd. — British Ronceray, Ltd. — British Shotblast & Engineering Co., Ltd. — Bromhead & Denison, Ltd. — Broom & Wade, Ltd. — Buckland Sand & Silica Co., Ltd. — Burn, John, & Co. (B'ham), Ltd. 50 Burnand, W. E., & Son, Ltd. —

Canning, W., & Co., Ltd. — Carborundum Co., Ltd. 33 Catalin, Ltd. — Cawood Wharton & Co., Ltd. 58 Centrozap Foundry Machines — Chapman & Smith, Ltd. 58 Chemicals & Feeds, Ltd. — Chetham Timber Co., Ltd. — Churchill, Charles & Co. Ltd. — Ciba (A.R.L.), Ltd. 1 City Casting & Metal Co. Ltd. 24 Clayton Crane & Hoist Co.Ld. 8 Cleanair, Ltd. 35 Cohen, Geo. Sons & Co., Ltd. — Coleman-Wallwork Co., Ltd. 18 Combustion Chemicals, Ltd. — Comeley, A., Ltd. — Consolidated Pneumatic Tool Co., Ltd. — Constructional Engineering Co., Ltd., The 11 Controlled Heat & Air, Ltd. — Conveyor & Shotblast, Ltd. — Cooke, Bailey, Ltd. —

PAGE NOS.

Cox & Danks, Ltd. — Crockett Lowe, Ltd. — Crookes, L. E. — Cumming, Wm., & Co., Ltd. 17 Cupodel, Ltd. —

Dallow, Lambert & Co., Ltd. — Dickson, Roy Wilson Ltd. — Distillers Co., Ltd., The — Distington Engineering Co., Ltd. — Dowler, H. J., Engineers & Pattern Makers, Ltd. — Dowson & Mason, Ltd. 57 Dunford & Elliott, Ltd. 55 Durrans, James, & Sons, Ltd. 12 Dustraction. 59 Dustuctor Co., Ltd. — Dyson, J. & J., Ltd. —

Electrical Development Assoc. — Electrogenerators, Ltd. — Elliott, E. & C., Ltd. 32 Engineering Services (Manchester), Ltd. — Escol Products, Ltd. — Evans, James & Co., Ltd. — Evans, Roy, M.I.B.F. — Evans, Stanley N., Ltd. — Eyre Smelting Co., Ltd. 56

F. & M. Supplies, Ltd. 647 Felco Hoists, Ltd. — Filter-Heat, Ltd. — Fischer, George, Ltd. 5 Fisher-Foundries, Ltd. — Fletcher Miller, Ltd. 24 Flextol Engineering Co. Ltd. — Floodgate Steel Fabricating Co., Ltd. — Fordath Engineering Co., Ltd. 2 Foundry Equipment Ltd. 28 & 29 Foundry Mechanisations (Baillot), Ltd. 6 Foundry & Metallurgical Equipment Co., Ltd. 31 Foundry Plant & Machinery, Ltd. — Foundry Services, Ltd. 35 & 37 Foundry Suppliers, Ltd. 5 Foxboro Yoxall, Ltd. — Frankiss R. J. (Patterns) Ltd. 50 Franklin Furnaces, Ltd. — Fuel & Metallurgical Processes, Ltd. — Fullers' Earth Union, Ltd., The 61

G.W.B. Furnaces, Ltd. — Gadd, Thos. — Gas Council — General Refractories, Ltd. 7 Gesellschaft für Hüttenwerksanlagan m. b. h. 22 Gilbert, G. & R. (Industrial), Ltd. — Gliksten, J., & Son, Ltd. 34 Goodyear Tyre & Rubber Co., Ltd. 651 Great Lakes Carbon International, Ltd. — Green, E., & Son, Ltd. — Green, Geo., & Co. 25 Gregory, J. G., & Sons, Ltd. — Griffiths, A. E. (Smethwick), Ltd. — Guest, Keen Iron & Steel Co., Ltd. 38 Guyson Industrial Equipment Ltd. 26

Harborough Construction Co., Ltd. — Hargraves Bros. (Manchester), Ltd. 58 Harris & Pearson, Ltd. 62 Harvey & Longstaffe, Ltd. — Harvey, J. J. & Pressurecast, Ltd. — Hatcham Rubber Co., Ltd. — Hedin, Ltd. — Heneage Metals, Ltd. — Hepburn Conveyor Co. Ltd. — Heywood, S. H., & Co., Ltd. — High Speed Steel Alloys, Ltd. —

PAGE NOS.

Hills (West Bromwich), Ltd. 23 Holman Bros., Ltd. — Holmes, W. C., & Co., Ltd. — Holroyd & Hall, Ltd. — Hooker, W. J., Ltd. — Hunt, F. L., Ltd. —

I.C.I. (Billingham Division), Ltd. — I.C.I. (Plastics Division), Ltd. — Ilford, Ltd. 39 Impregnated Diamond Products, Ltd. — Incandescent Heat Co., Ltd. — Ingersoll-Rand Co., Ltd. —

Jackman, J. W., & Co., Ltd. — Jacks, Wm., & Co., Ltd. 653 Joy-Sullivan, Ltd. —

Keith Blackman, Ltd. 19 Kenilworth Mfg. Co., Ltd. — King, Geo. W., Ltd. —

Lafarge Aluminous Cement Co., Ltd. 655 Laidlaw, Drew & Co., Ltd. — Lazarus, Leopold, Ltd. 59 Leicester Lovell & Co., Ltd. 20 Levy, B., & Co. (Patterns), Ltd. 51 L.M.S. Products, Ltd. — Lones, Joseph Laboratories — Lord, E. S., Ltd. — Luke & Spencer, Ltd. 30

Macnab & Co., Ltd. — Major, Robinson & Co., Ltd. — Mansfield Standard Sand Co., Ltd. — Marco Conveyor & Engineering Co., Ltd. — Mathison, John, Ltd. — Matthews & Yates, Ltd. — May, J. H., Ltd. 51 McKechnie Bros., Ltd. — Metalectric Furnaces, Ltd. — Metalline Cement Co., The — Metals & Equipment (Wolverhampton), Ltd. — Midgley & Son, Ltd. — Midland Monolithic Furnace Lining Co., Ltd. 50 Mine Safety Appliances, Ltd. — Modern Furnaces & Stoves, Ltd. — Molineux Foundry Equipment, Ltd. — Monometer Manufacturing Co., Ltd. — Mond Nickel Co., Ltd. — Morgan Crucible Co., Ltd. — Morris, B. O., Ltd. — Morris, H., Ltd. — Moyle, Victor & Co., Ltd. — Muir, Murray & Co., Ltd. 59

Newton Collins, Ltd. — Newman Hender & Co., Ltd. — Nicholl & Wood, Ltd. — Norris Equipment & Construction, Ltd. — Nundy Marine Metals, Ltd. —

Ormerod, R. E., Ltd. —

Palmer Aero Products, Ltd. 54 Parish, J., & Co., Ltd. — Park & Paterson, Ltd. — Parker Mitchell Engineering Co., Ltd. — Passe, J. F., & Co. — Paterson Hughes Engineering Co., Ltd. — Patterncrafts, Ltd. 56 Pearson, E. J. & J., Ltd. 55 Peco Machinery Sales, Ltd. 13 Perry, G., & Sons, Ltd. — Phillips, J. W. & C. J., Ltd. 57 Pickard, W., & Co., Ltd. — Pickford, Holland, Ltd. — Platt Metals, Ltd. 62 Pneulec, Ltd. — Podmore, W., & Sons, Ltd. — Polford Engineering Co., Ltd. — Polygram Castings Co., Ltd. — Precision Presswork Co. Ltd. 45

PAGE NOS.

Price, J. T., & Co., Ltd. — Production Chemicals (Rochdale), Ltd. — Purimachos, Ltd. — Rapid Magnetic Ltd. — Reavell & Co., Ltd. 34 Refined Iron Co. (Darwen), Ltd. — Reid, Wm., & Co. 49 Resinous Chemicals, Ltd. — Richards Structural Steel Co., Ltd. 649 Richardson Eng'g., Ltd. — Richardsons, R. J. & Sons Ltd. — Ridsdale & Co., Ltd. 62 Riley (IC) Products, Ltd. — Robson Refractories, Ltd. — Roper, E. A., & Co., Ltd. — Rowland, F. E., & Co., Ltd. — Rownson (Conveyors), Ltd. — Rubery Owen & Co., Ltd. — Rule & Moffat — Rustless Iron Co., Ltd. 32 Safety Products, Ltd. 26 Salter, Geo., & Co., Ltd. — St. George's Engineers, Ltd. 52 Sheffield Smelting Co., Ltd. — Shell Chemical Co., Ltd. — Sheppard & Co., Ltd. 54 Sinex Eng'g. Co., Ltd. — Sintokogio Ltd. — Sklenar Furnaces, Ltd. — Smedley Bros., Ltd. — Smeeton, J. A., Ltd. — Smith, A., & Co. — Smith, A. (S. & B. Foundry Sands), Ltd. — Smith, John (Keighley), Ltd. — Sommerfield, H. G., Ltd. — Spencer & Halstead, Ltd. — Spermolin, Ltd. — Stansby, W., & Co., Ltd. 50 Stanton Ironworks Co., Ltd., The 40 & 41 Staveley Iron & Chemical Co., Ltd. — Steels Engineering Installations — Stein, John G., & Co., Ltd. — Stephens, Wm., & Sons, Ltd. 25 Sterling Foundry Specialties, Ltd. 42 Sternol, Ltd. — Suffolk Iron Foundry (1920), Ltd. — Tallis, E., & Sons, Ltd. — Taylor Patterns, Ltd. — Thomas, G. & R., Ltd. — Thomas, Gwyn & Co. — Thompson, John, Instrument Co., Ltd. — Thomson & McIntyre 49 Tilghman's, Ltd. — Union Carbide, Ltd. — Unit Engineering Co. 53 United Fireclay Products, Ltd. 4 United States Metalite Packing Co., Ltd. — Universal Pattern & Precision Engineering Co., Ltd. — Verrolec, Ltd. — Victor Products, Ltd. — Wadkin, Ltd. — Wal-Met Alloys Co. — Walker, I. & I., Ltd. — Walsh Bros. — Ward, Thos. W., Ltd. 3 Waring Bros. — Warner & Co., Ltd. — Watsons (Metallurgists), Ltd. 51 Webster & Co. (Sheffield) Ltd. — West Midland Refining Co., Ltd. — Whitecross Co., Ltd. — Wild-Barfield Electric Furnaces, Ltd. 21 Wilkinson Rubber-Linatex Co., Ltd. — Wilson, T. S. & Co. (Graphite), Ltd. 58 Witham, L. A., & Co. 58 Woking Pattern Works, Ltd. 58 Woodward Bros. & Copelin, Ltd. —

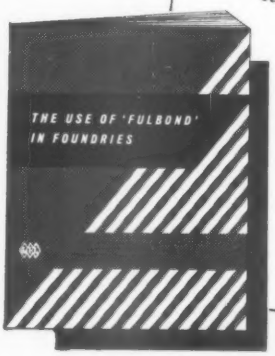
Published by the Proprietors, INDUSTRIAL NEWSPAPERS (FUEL & METALLURGICAL), LIMITED, John Adam House, 17/19, John Adam Street, London, W.C.2, and Printed in Great Britain, by HARRISON & SONS, LIMITED, by Appointment to Her Majesty The Queen, Printers, London, Hayes (Middx) and High Wycombe.

FOCUS ON 'FULBOND' No 3

Moisture Content

The working moisture content of moulding sands varies in accordance with their basic composition. For green sand castings some natural sands are mouldable at high moisture while others reach the optimum at an appreciably lower level. Fresh deliveries of natural sands which cannot be dried off, may compel foundrymen to use a moulding sand which has a moisture content exceeding that of the optimum. The result of this is low green strength, low permeability, the risk of dissolved gases in the metal leading to porous castings, and burning on. One solution is to add as much dry returned sand to the new wet sand as possible; the returned sand, however, may contain up to 75% of its original temper moisture.

FULBOND can be helpful because it has great capacity for absorbing water and also because of its effective bond strength over a very wide range of moistures. The small extra cost of the occasional use of FULBOND is more than compensated for by cleaner and sounder castings and time saved in the fettling shop. No amount of scraping, brushing and cleaning will produce the same skin finish on castings as a good and properly balanced moulding sand.



For a copy of this Brochure please write to:-

THE FULLERS' EARTH UNION LIMITED

Patteson Court, Nutfield Road, Redhill, Surrey

A member of the Laporte Group of Companies

CMF58

FOUNDRY TRADE JOURNAL

EST. 1902

WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

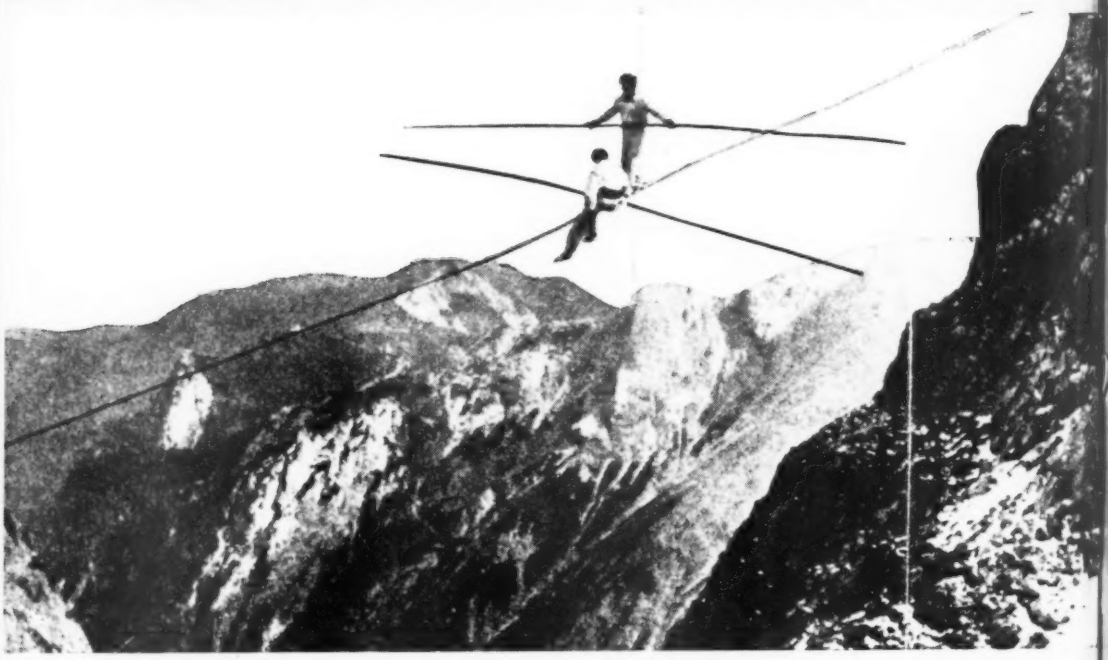
VOL. 109
No. 2293

NOVEMBER 17, 1960

Registered at the G.P.O. as a Newspaper

Offices: John Adam House, John Adam St., London, W.C.2

Single Copy. Post 1/4. Annual subscription, Home Abroad 60/-



a well balanced non-ferrous metal service

The most pernickety buyer of non-ferrous metals cannot cavil at the perfectly balanced service he can obtain from Platt.
A thorough knowledge of the manufacture of brass, bronze, gun-metal, zinc and lead, with modern plant to back it; consistent purity and meticulous specifications to ensure a better end product; prices that are a pleasure to know; helpful technical advice that can save you valuable hours, and unusually quick deliveries. All add up to a well balanced non-ferrous metal service.

Platt METALS LTD

PLATT METALS LTD., ENFIELD, MIDDLESEX. HOWARD 3351

PRICE'S FIREBRICKS

As used by all the leading Iron and Steelworks and Foundries at Home and Abroad

Manufactured by

RIDSDALE & CO. LT

NEWHAM HALL MIDDLESBROUG

for **SAND TESTING EQUIPME**

BRITISH LICENCEES H. W. DIETERT CO. U.S.A